

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

2119.—VOL. XLVI.

LONDON, SATURDAY, APRIL 1, 1876.

WITH SUPPLEMENT. PRICE SIXPENCE. PER ANNUM, BY POST, £1 4s.

JAMES H. CROFTS, STOCK AND SHARE BROKER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
Established 1842.

Business transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Miscellaneous, Assurance, Telegraph, Shipping, Canal, Gas, Water, and other securities. Negotiated in Stocks and Shares not having a general market value. Also in all COLLIERIES and IRON Shares, and in the principal WAGONS and MINING COMPANIES of the NORTH of ENGLAND and SCOTLAND. H. CROFTS, having now established CORRESPONDING AGENCIES in all the principal towns of the United Kingdom, is prepared to deal in the various LOCAL Stocks and Shares at close market prices. Accounts opened for the Fortnightly Settlement. Monthly and Daily Price Lists issued.

Bankers: City Bank, London; South Cornwall Bank, St. Austell.

DEALINGS in the following SHARES:—

East Van.	Pateley Bridge.
Enna.	Palmer's Shipbuilding.
Flagstaff.	Plympton.
Glyn.	Rookhope Valley.
Great West Van.	Roman Gravel.
Javali.	Richmond.
Llanrwst.	St. Patrick.
Monydd Gerdau.	Sweetland.
North Laxey.	Tankerville.
Old Treburt.	Van Consols.
Penrhy.	West Craven Moor.
Parys Mountain.	West Chiverton.
Pennant.	West Tankerville.

FOR SALE (to close an account), 20 St. Patrick, cheap.

BUSINESS in POSITIVE ASSURANCE SHARES. Shares sold for forward delivery (one or two months) on deposit of 20 per cent. on hand in all the leading TIN, COPPER, and LEAD Shares.

WAYS.—SPECIAL BUSINESS. Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

W. WILLIAM H. BUMPUS,
STOCK AND SHARE BROKER,
44, THREADNEEDLE STREET, LONDON, E.C.
[Established 1867.]

PURCHASES and SALES effected, on the best possible terms, in—RAILWAYS, FOREIGN BONDS, and STOCK EXCHANGE SECURITIES of every description for INVESTMENT or SPECULATION.

AL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

Accounts opened for the Fortnightly Settlement on receipt of the usual cover. References given and required when necessary.

A STOCK and SHARE LIST sent FREE on application.

BUMPUS directs particular attention to

MINING INVESTMENTS.

In a position to give reliable information and advice respecting the same. Profits may be realized during the next few months by purchasing well-selected Shares at present prices, as there are several likely to have a great rise.

Following are strongly recommended, viz:—

Penrhy, Parys Mountain, Argentine, Blue Tent, and Condes de Chili.

B. can supply Aberdaunt, Llanrwst, and Monydd Gerdau Shares on time terms.

BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE E.C.

AL BUSINESS at best prices in—

Shares. Iron Companies. Home Mining.

Consols. Cotton & Wagon Companies. Railways.

Foreign Bonds. Foreign Mining.

Cheques should be crossed "London and Westminster, Lothbury."

EN RISLEY (SWORN), STOCK AND SHARE BROKER,
33, CORNHILL, LONDON.

Business transacted at the following rates of commission:—Foreign Stocks, 1/4 per cent. and Mining Shares of £4 each and upwards, 1/2 per cent.; under £4, 1/2 per cent.

AL CREBOR, AND PARYS MOUNTAIN.—These shares are strongly recommended.

ESSRS. A. ENDEAN, FISHER, AND CO., STOCK AND SHARE DEALERS,
3, LOMBARD COURT, LOMBARD STREET, E.C.

Bankers: London and Westminster, Lothbury.

ESSRS. HARLAND AND CO., STOCK AND SHARE DEALERS,
235 and 236, GRESHAM HOUSE,
OLD BROAD STREET, LONDON, E.C.
Bankers: London and County Bank

ESSRS. H. and Co. have Special Business in Chapel House and Alltami Collieries, also in the shares of the Oregon Gold, and the Patent Ligno Mineral Companies, and will be happy to give full particulars of the above desirable mining investments on application.

Dealings at closest market prices in all kinds of Stocks and Shares.

ESSRS. BLYTH AND HUTCHINSON,
STOCK AND SHARE BROKERS,
3, GEORGE YARD, LOMBARD STREET, LONDON.

Business in all kinds of Stock Exchange Securities, also in Mining Shares of every description; and will give any information respecting them on application. Monthly and Daily Price Lists issued.

Bankers: Alliance Bank.

ESSRS. ENDEAN AND CO., STOCK AND SHARE DEALERS,
25, GRACECHURCH STREET, LONDON, E.C.

Business and every negotiable Stocks dealt in for cash or account. Orders executed punctually attended to.

Van Mine, returning about 700 tons of mineral per month, paying good dividend, now the East Van having cut rich. The Aberdaunt, on the same lode, but 12 fms. sinking is likely to be of equal value, and the shares should be held whilst they can be had so cheaply. They have a longer run on the lode than Van or East Van.

Bureau and Guide to Investments, with a plan of Van district. Price 6d. Shares bought and sold at net prices.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 19 Years).

Business in all the following SHARES, at prices annexed:—

Argentine, 26 3/4.	20 Flaxstaff, £1 19s.	30 Pennerley, 42s. 6d.
Aberdaunt, 26 3/4.	50 Gold Run, 15s. 3d.	60 Plympton, 10s.
Birdseye, 21 18s. 9d.	25 Glyn, 50s.	60 Penrhy, 10s. 3d.
Chapel House, 23 3/4.	60 Gt. West Van, 11s. 6d.	75 Port Nigel, 19s.
Cedar Creek, 18s. 3d.	75 Javali, 9s. 6d.	40 Rookhope Val, 21s. 9d.
Chontales, 8s. 9d.	20 Last Chance, 18s. 9d.	20 Richmond, 26s. 9d.
Don Pedro, 8s. 9d.	40 Llanrwst.	40 Santa Barbara, 27s. 6d.
East Van, 21s.	25 Ladywell, £2 1s. 3d.	25 San Pedro, £2 3s. 9d.
Exchequer, 29s. 6d.	60 North Valley, £2 9s.	50 Tecoma, 16s. 6d.
Malpas Gold, 37s.	80 North Laxey, 22s.	25 Van Consols, £2 3/4.
Marke Valley, 22s.	80 Old Treburt, 2s. 6d.	15 W. Tankerville, 40s.
Penrhy, 27 3/4.	20 Pateley Bridge, 25 3/4.	20 W. Pateley Bdg., 25 3/4.
Port Nigel, 19s.	40 Parys Mountain, 18s.	

BRITISH AND FOREIGN MINING ENTERPRISE.

MARCH No. 771, Vol. XV., now ready.

(Published yesterday 31st March.)

Annual subscription, 5s.; single copy, 6d.

MESSRS. PETER WATSON AND CO.'S
BRITISH AND FOREIGN (MONTHLY) MINING NEWS—
STOCK AND SHARE INVESTMENT NOTES—
LEAD MINES.

Contains mention of some of the leading British Lead Mines, viz.:—Van, Great Laxey, Tankerville, Roman Gravel, Great Dyllife, Minera, Foxdale, West Chiverton, East Van, Pennerley, Old Treburt, North Laxey, Rookhope, Grogwinion, &c.

MESSRS. PETER WATSON AND CO.,

STOCK AND SHARE DEALERS,

79, OLD BROAD STREET, LONDON, E.C.

Bankers: The Alliance Bank (Limited).

Managers, Secretaries, and Purveyors of Mines are requested to forward all Notices of Meetings, Calls, Dividends, Reports or Improvements in Mines, Sales of Ore, &c.

N.B.—Circulation of this publication about 5000 monthly.

MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,

79, OLD BROAD STREET, LONDON.

(Established 1853.)

BUSINESS transacted in all LEAD SHARES at closest market price of the day. Early advice should now be sought concerning the next shares to rise.

SPECIAL BUSINESS in POSITIVE ASSURANCE SHARES.

GREAT DYLLIFE LEAD MINE SHARES strongly recommended at 24 1/2, 25 1/2. Mine making good profits.

MR. COOKE issues daily price lists both of Stock Exchange and Mining Shares, which will be forwarded on application.

STOCK EXCHANGE SPECULATION OR INVESTMENT.—Best information given, and Fortnightly accounts opened. Terms on application.

All Investors in Railways, Foreign Stocks, and Mines should consult the "INVESTORS' GAZETTE." The April Number of the "INVESTORS' GAZETTE" will be ready next week. Post free for three stamps of Mr. A. E. COOKE, 79, Old Broad-street, London.

MR. T. E. W. THOMAS, SHARE BROKER,

3, GREAT WINCHESTER STREET BUILDINGS, E.C.

(Established 1857.)

The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

Buyers.		Sellers.	
Asheton	13 1/2	Pennerley	2 1/2
Birdseye Creek	13 1/2	Penrhy	10s.
Chapel House	3 1/2	Plympton	10s.
Exchequer Gold	4 1/2	Richmond	6 1/2
Flagstaff	4 1/2	Roman Gravel	14 1/2
Glyn	17 1/2	Rookhope	18s.
Great Laxey	17 1/2	Rossa Grande	2s. 9d.
Great West Van	10s.	Santa Barbara	13 1/2
Hington Down	15s.	San Pedro	2 1/2
Javali	8s.	South Condurrow	2 1/2
Llanrwst	2 1/2	Sweetland	3 1/2
Marke Valley	2 1/2	Tankerville	11 1/2
North Laxey	19s. 6d.	Tincroft	17 1/2
Old Treburt	3 1/2	Unity Wood	1 1/2
Parys Mountain	14s.	Van	39 1/2
Pateley Bridge	5 1/2	Van Consols	2 1/2

N.B.—Special Business in the shares of the Aberdaunt Lead Mining Company (Limited), working on the Van and East Van lodes.

MR. WILLIAM WARD

(LATE WARD AND LITTLEWOOD).

CROSBY HOUSE,

95, BISHOPSGATE STREET WITHIN, E.C.,

STOCK AND SHARE BROKER.

MESSRS. KEENE AND LAMBERT,

STOCK AND SHARE BROKERS,

METROPOLITAN BUILDINGS, 63, QUEEN VICTORIA STREET, E.C.

Bankers: London and Westminster Bank, Lothbury.

ESTABLISHED TEN YEARS.

MR. E. J. BARTLETT, STOCK AND SHARE DEALER.

No. 30, GREAT ST. HELEN'S, LONDON, E.C., has SPECIAL BUSINESS in St. Patrick, Wheel Kitty, South Condurrow, Wheel Whisper, Pennerley, South Tolarnie, East Lovell, East Van, Llanrwst, East Caradon, West Craven Moor, and Bamfylde shares at close prices.

Capitalists who seek Safe and Profitable Investments should act only upon the soundest information. The market prices for the day are, for the most part, governed by the immediate supply and demand, and not always by the bona meritis of the properties.

MR. E. J. BARTLETT devotes special attention to every class of securities.

MR. JAMES STOCKER, STOCK AND SHARE BROKER,

2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

(Established 1843.)

BUSINESS transacted in all kinds of STOCK EXCHANGE SECURITIES,

also in every description of BRITISH and FOREIGN MINING SHARES.

SPECIAL BUSINESS in the following:—

Van.	Parys Mountain.	Richmond.
Grogwinion.	Great West Van.	Emma.
Asheton.	Ladywell.	Frontino.
West Wye Valley.	Penrhy.	Santa Barbara.
Cathedral.	Old Treburt.	Javali.
Wheel Crebor.	Hington Down.	Chontales.
Plympton.	Rookhope.	Blue Tent.
Wheel Grenville.	Marke Valley.	Port Philip.
Chapel House Colliery.	South Roman Gravel.	Rossa Grande.
West Pateley Bridge.	West Tankerville.	Cedar Creek.

Public attention is evidently turned to good Mining Enterprises, which afford great profits with small outlay. A large business is being transacted in the following:—

Consols, Foreign Bonds, Railways, Bank, Telegraph, Gas, and all miscellaneous Shares bought and sold, and fortnightly accounts opened for same. Shares sold for forward delivery on receipt of cover. List of prices and every information forwarded on application.

References given and required when necessary.

BANKERS: LONDON AND WESTMINSTER.

MR. CHARLES THOMAS,

MINING AGENT, STOCK AND SHARE DEALER,

3, GREAT ST. HELEN'S, LONDON, E.C.

TEMPLE LEAD MINING COMPANY

(LIMITED).

Particulars may be obtained on application to—

CHARLES THOMAS, 3, GREAT ST. HELEN'S, LONDON.

MESSRS. A. W. THOMAS AND CO.,

MINING AGENTS, AND STOCK AND SHARE DEALERS.

"INVESTMENTS AND SPECULATIONS FOR 1876."

Post free for six stamps.

Messrs. A. W. T. and Co. have SPECIAL BUSINESS in the following MINES, shares in all of which they can supply at closest market prices:—Aberdaunt, Llanrwst, Prince Patrick, St. Patrick, North Laxey, Parys Mountain, Pennerley.

G. E. SIMPSON, STOCK AND SHARE DEALER.

6, GREAT WINCHESTER STREET BUILDINGS, LONDON, E.C., will

SELL the FOLLOWING SHARES, free of commission:—

40 Gold Run, 15s.	40 Plympton, 10s.
25 Great Vor, £2 1/2.	75 Parys Mount, 18s.
10 Great Laxey, £18.	45 Pateley Bridge, £5 11 3
50 Asheton, 29s.	20 Richmond, 26 3/4.
30 Birdseye, £2.	15 Roman Gravel, £13 3/4.
30 Colorado, £1 18s. 9d.	60 Santa Barbara, 28s. 6d.
5 Cape Copper, £38.	60 Sweetland, £2 1/2.
60 Chapel House, £3 9s.	20 San Pedro, £2 3s. 9d.
50 Cedar Creek, 11s. 6d.	20 San Pedro, £2 3s. 9d.
50 Exchequer, £7 1/2.	20 Tankerville, £11 1/2.
60 Exchequer, £1 11s. 3 1/2.	10 Van, £38 3/4.
20 East Van, £10 3/4.	50 Van Consols, £2 1/2.
25 East Caradon, £1 1/2.	60 Pennerley, £2 4s. 6d.

MR. THOMAS THOMPSON, JUN., 1, PALMERSTON

BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

Some valuable hints as to the purchase of mining shares will be found in Mr. Thompson's "Investment Circular" for April now ready, post free, price 6d.

MR. W. TREGELLAS, 122, BISHOPSGATE STREET

WITHIN, E.C.,

Deals in all descriptions of Stocks and Shares at close market prices.

MESSRS. W. J. TALLENTIRE AND CO.,

STOCK AND SHARE BROKERS.

20, CHANGE ALLEY, CORNHILL, LONDON, E.C.

Transact business in Stock Exchange Securities and Mining Shares of every description, either for immediate cash or the usual bi-monthly settlements, and also afford advice personally or by letter to executors, trustees, capitalists, and investors of every class in the selection of Securities for safe and profitable investment, their experience of the markets, extending over a period of more than sixteen years, together with special facilities for acquiring information, enabling them to act beneficially for clients.

They have established Corresponding Agencies in all the principal towns of the United Kingdom, and are prepared to deal in the various local Stocks and Shares at close prices. Orders per post or telegraph receive prompt attention.

INVESTORS SHOULD APPLY for a copy of Messrs. W. J. TALLENTIRE and Co.'s Circular, SENT POST FREE. It contains valuable information on Foreign Stocks (especially South American, Egyptian, and Turkish), Railways, and Lead Mines.

MESSRS. HARVEY, JORDAN, AND CO.,

MINING ENGINEERS AND AGENTS, ACCOUNTANTS, AUDITORS,

MANAGERS OF PUBLIC COMPANIES.

In connection with Messrs. TEAL, FOSTER, and Co., Georgetown, Colorado.

Mineral Properties Inspected.

LONDON OFFICES—30, MOORGATE STREET, E.C.

THE LLANTRISANT TIT PLATE WORKS.

THE PLANET SILVER MINING CO.

MESSRS. T. VOSPER AND CO.,

MINERAL AND GENERAL ESTATE AGENTS.

48, FINSBURY CIRCUS, LONDON.

ON SALE, on advantageous terms, direct from Owners, several Freehold and Leasehold estates in town and country, Collieries in their entirety, and shares in colliery companies now unreasonably depreciated recommended as a safe investment. Speculatively, Lead Copper, and Iron mines, or shares in this class of property, are obtainable at the present time at very low prices. Such shares must advance in price speedily. Country clients will receive prompt attention.

MESSRS. J. TAYLOR AND CO., 86, LONDON WALL,

LONDON, E.C.,

STOCK AND SHARE DEALERS.

Have business at close rates in the following:—Aberdaunt, Ambrose Lake, Asheton, East Van, Great Laxey, Llanrhiall, Llanrwst, Marke Valley, North Laxey, North Prince Patrick, Parys Mountain, Pennerley, Penrhy, Plympton, Roman Gravel, South Condurrow, Tankerville, Van, Van Consols, West Asheton, and West Tankerville.

Argentine, Condes (Chili), Don Pedro, Eberhardt, Emma, Exchequer, Flagstaff, Richmond, San Pedro, Tecoma.

LLANRHIALL LEAD MINING COMPANY (Limited).—This company has just sold its first parcel of lead. A good discovery of ore has been made at the mine, at a point below the No. 4 level, which proves that the same run of ore which has been worked upon above (and from which nearly £13,000 worth of lead was sold within three years) is holding down; and when it is cut in the deep adit level 40 fms. deeper, which it is expected will be done in about 15 fms. more driving, large returns will be made and immense reserves laid open; when this is accomplished the shares must, we think, experience a rise in prices.

WELSH LEAD MINES.—INVESTORS IN LEAD MINES can obtain full information respecting the present position and future prospects of all the principal properties, and also a CORRECT MAP, showing their situation and the run of the mineral veins, upon application to Messrs. OWEN and Co., Stock and Share Brokers, 4, Bishopsgate-street, London, E.C. Price of map, 1s.

CATHEDRAL MINE.

WANTED TO PURCHASE, ONE THOUSAND (or a substantial part of that number) SHARES of the NEW ISSUE in this company. Sellers state lowest number and price.

Address, "H. P.," MINING JOURNAL Office, 26, Fleet-street, E.C.

SOUTH PRINCE PATRICK LEAD MINE.—

THREE HUNDRED AND SEVENTY SHARES in this MINE FOR SALE.

No reasonable offer will be refused.

Apply by letter only to Mr. CHARLES DIBBOE, 62, Church-street, Liverpool.

FOR SALE.—EIGHTY-FIVE CHAPEL HOUSE SHARES.—

Price, with dividend, £3 7s. 6d.

Address, "J. N. C.," MINING JOURNAL Office, 26, Fleet-street, London.

FOR SALE.—SHARES AND DEBENTURES IN THE

COWMORTHIN SLATE COMPANY (LIMITED), FESTINIOG, NORTH WALES.

Apply to "A. Z.," Post Office, Middlesbrough.

MR. R. PERCY ROBERTS,

FINANCIAL AGENT,

60, ENGLISH STREET, CARLISLE.

MR. W. F. STANLEY, MATHEMATICAL INSTRUMENT

MANUFACTURER TO H.M.'S GOVERNMENT, COUNCIL OF INDIA,

SCIENCE AND ART DEPARTMENT, ADMIRALTY, &c.

MATHEMATICAL, DRAWING, and SURVEYING INSTRUMENTS of every

description, of the highest quality and finish, at the most moderate prices.

Price-list post free.

ENGINE DIVISION TO THE TRADE.

ADDRESS—GREAT TURNSTILE, HOLBORN, LONDON, W.C.

STOCK.—HAYWARD TYLER AND CO., of LONDON, have

now ready ENGINES, BOILERS, and "UNIVERSAL" STEAM PUMPS,

having made extensive alterations in their premises to enable them to keep a stock.

Royal School of Mines.

PROF. SMYTH'S LECTURES ON MINING—No. XXI.
[BY OUR SPECIAL REPORTER.]

The subject of our last lecture—the mode of paying the men—although apparently very simple, is a very important one, and leads to great difficulties if not thoroughly understood. The arrangements as to payment have to vary, as we saw, according to the conditions of the mine. But there is one point common to both kinds of work—that there is a free agreement on both sides for the men to do a kind of work which is described as accurately as may be at the outset, and it is for their interest, as well as for that of the managers, that it should be done in a given time. It is necessary that rules and regulations should be laid down and adhered to, as, for instance, in sinking or driving that the work should follow a certain definite direction, have a specified breadth, &c.; that the levels should be kept horizontal, or within certain limits of variation. The cases that we looked at particularly were those of our western districts, but the general principles are much the same in other parts. In the North of England the term fathom-tale is applied to the measurement by fathoms, or, in other words, to the tutwork; and if the payment be on the amount of ore raised the term bing-tale is employed, a bing being the general measure of lead ore in the district, and equal to 8 cwt. In Saxony and Hungary similar methods of payment are adopted. But there are still one or two special points to be noticed. For instance, if a lode contain the metalliferous matter disseminated through it, as is the case with gold and tin, then the work would be by tutwork. There may be, however, places in the lode where, from the presence of nests or strings of ore, it is very much richer than usual. It is undesirable that this richer part should be mixed with the general mass of ore, and then have again to be separated, and a separate bargain is, therefore, made with the men as to such parts. In the Cornish districts it is found advisable to drive the level not in the lode itself, but in the country by the side of it; and this plan is especially desirable in cases where you get a very rich class of work, substances of high intrinsic value, as gold and silver. The level is driven in the country by the side of the lode by one set of men on the tutwork system, and then, when the material from the level is cleared away, the lode itself is broken down from time to time, and collected separately. This is done according to special bargain, either by the same set of men, or by another set, and the lecturer had seen good service done in removing the lodes by employing a set of somewhat better educated youths. In gold and silver workings there is great temptation for the men to pick up pieces of the ore, and it is best not to put this temptation in their way by giving them the whole work to do at once. Another reason for this method is to be found in the fact that in some districts (as in that of St. Just) the lode is of such a character that much more rapid progress can be made in driving through the country by the side. The agreement for taking away the lode will usually be by allowing them so much for every ton, or so many shillings for every pounds worth. It is easy to conceive several circumstances in which it is desirable to adopt some such measure as this.

We may now take a sort of general view of mining operations as they are more or less contrasted with one another, and of the various ways in which they are represented in plans and sections. The general arrangement of working in a colliery or bedded deposit is likely to be very different from that which is usual in metalliferous mines, in consequence of the regularity attached to the one kind of deposit as compared with the other. In the case of a colliery or bedded ironstone deposit, we can at the commencement of the working reckon on its being continued over a moderately large area, with sufficient regularity to enable us to calculate beforehand what is likely to be the output from a given part. The question is only one of a mechanical nature, how best to get at the deposit, and then how best to remove it. But the case is very different when we come to deal with a metallic mine; the workings may be regarded as more or less regular after a time, but during its progress it is to be looked on as only a series of trials and experiments made one after another. In the commencement of such a mine it may take at first an extremely simple character; as, for instance, the driving in of a level from a hill side, either along the lode or in order to intersect it. Then, when it became difficult to ventilate the end of the level, a shaft should be sunk from the top for this purpose; and levels might then be multiplied and extended, till a second shaft was requisite, when one of these should be employed for pumping, the other for hauling. But if at any time the driving of the levels in different directions show that the workings are not likely to be successful the whole will have to be given up, so that, in fact, the working resolves itself into a series of experiments, of which those which are unpromising must be abandoned. And this character must be kept constantly in mind in commencing a mine; it is unwise to go to a great expense at once in engines adapted for large depths, &c., but to add these by degrees as the mine establishes itself, taking care in the outset to introduce, as far as possible, apparatus which may subsequently subserve some secondary purpose. Moreover, in consequence of the irregularity of the deposits, it may be necessary in the case of large workings to have to change the chief seat of operations several times, according to the disposition of the mineral; and, therefore, the probability of this must be considered when setting up appliances in any one particular spot. And in this respect there is great difference from the extensive plant and perfection of the apparatus connected with a large colliery, where there is no likelihood, or necessity, for any such change in the course of operations. Sometimes, instead of putting up fresh machinery at the different shafts of the metal mines as they are opened, the existing engines are made to do their work at considerable distances by means of flat-roads, chains, and pulleys. All these things have to be taken into consideration in the sinking of shafts and the arrangement of underground workings. The shafts in the collieries are openings nearly or quite perpendicular, in the metalliferous mines they are either carried down in the lode itself, or sunk perpendicularly, for the purpose of intersecting the lode at a certain depth. Sometimes, partly from accident, partly from richness of the ground in certain parts, partly from the nature of the ground, you see a number of shafts very close together, which, looked at *ex post facto*, seem quite unnecessary to be so crowded, and were evidently attended with very great expense. As a general rule it may be said that such cases would not have resulted if one could have known beforehand what the working would be likely to be worth. In the case of the celebrated Comstock lode, for example, you see such an aggregated number of shafts that it is evident at once there has been a very great deal more expended on this dead work than was really required, only it was thought that it was necessary to work the lode in so many separate portions. The course of the works may be thrown quite out of their original direction by the fact of the shoots of ore extending in directions different from that they took at the commencement. In such a case it will be necessary to sink fresh shafts, to intersect the direction in which the main axis of the shoot is tending; or if the ground be not of sufficiently promising character to warrant that expense, an oblique shaft will be sunk in the axis of the shoot itself. This is altogether a class of workings which does not occur in working stratified deposits.

In one system of working the coal deposits the preliminary workings are carried forward of a comparatively narrow character by the driving out of levels on what is termed by the miners the water level—that is, a line nearly or quite horizontal. Sometimes two, sometimes three or four, of these galleries run along parallel to each other. Then a second class of workings commence up the incline of the seam, feelers as it were, having the important object of opening out the ground for the subsequent wider working, and also to some extent draining the whole coal of gas before these wider workings come into play, and in the third instance serving afterwards as permanent roadways. All this it will be seen is preparatory and exploratory. In the other system this opening of the ground is not carried forward to such an extent, but along with this exploratory work goes a partial working of the coal by means of successive openings, locally termed "bords." The levels serve as roadways, and are connected by cross-cuts at intervals for the pur-

pose of ventilation, and thus you have the ground cut up into a series of pillars. The getting of the mineral on a large scale has to be preceded in both systems by a large amount of preparatory work, which in some instances may be remunerative, removing one-third or one-fourth of the coal, leaving the rest for subsequent working. In the collieries you may generally expect, almost universally, a large amount of regularity, and as a rule the ground is easy to cut, so that the workings may be carried on with much facility, and you are able to calculate how long it will take to get to such a boundary, or to cut a certain quantity of coal.

In metal mines the case is different; the rock is generally much harder. A full complement of men will, perhaps, be able to advance not more than 1 fm. a week—2 fms. is very good work indeed—and 1 or 2 fms. a month is very fair. The ground is so hard that the plan of the mine must be settled long beforehand; allowance must be made, on the other hand, for the fact that the circumstances may so change as to change the plan of the work: to give each of these considerations its due attention is sometimes like steering between Scylla and Charybdis. There ought to be a calculation of what should go forward for some years ahead, and to this end a great amount of liberty should be allowed to the manager by the shareholders, who are not so well acquainted with the special circumstances of the mine. From the slowness with which the operations proceed, the manager ought to have his eyes thoroughly about him, and see years beforehand what he intends to do, where shafts should have to be sunk and levels driven, in order that the workings might run on together. The lecturer had never seen this so well exemplified as in the management of the Devon Great Consols Mine, by Capt. Puckey, who in his reports had always a plan of something or other to be carried out, three or four years ahead. And this necessity is especially marked if there are several lodes to be dealt with. Another point of great importance is the necessity for always keeping a large proportion of the men at work on these exploratory or preparatory operations, in the sinking of shafts and driving of levels. You often find it to be the case that when persons not conversant with mining enterprise and mining arrangements step into anything connected with the management of a mine, as directors or otherwise, they have a great notion of stopping the levels and shafts as soon as the mineral wrought in them ceases to pay. It may be relied upon as an axiom in vein mining that so soon as you see your ends stopped in this way—and the same may be said of the shafts—you are almost certain to observe that the mine itself is coming to a close. For although you may have behind you very good removable ore, unless you open out the ground in front in order to search for fresh deposits, owing to the capaciousness of the lodes, your workings are pretty sure soon to come to an end. Always observe, therefore, whether the shafts and levels are advancing well beyond the ground which is in progress of being worked. It depends on the nature of the ground and circumstances of the mine how far in advance the levels should be carried. In Cornwall distances of 20, 40, 50, and even 100 fathoms have been driven in dead ground before a favourable result was again observed.

As regards the representation of the mines on maps and plans, the matter is very simple respecting collieries, the workings there being deferred to a horizontal plane. The part representing the coal withdrawn is, in some cases, coloured dark, in others the pillars left have the darker tint; faults are marked in with a yellow line, and the course of the ventilation is indicated by arrows. Managers of collieries are required by Act of Parliament to prepare their plans on a scale of two chains to an inch. It is usually the case in our British metal mines, and in many foreign ones, to represent the lodes or levels by single coloured lines in plan; the lines being drawn straight between points in the lode, determined by the theodolite, or compass. The line on the plan, therefore, strictly indicates a line in the lode, and not necessarily the continuous axes of the lode, hence the great irregularity these lines sometimes present. A number of these single lines together cause very great confusion; it conduces much to clearness to indicate the levels by means of double lines, filled up with colour. A better plan is that adopted at some of the Hungarian mines, where the double lines indicate the actual walls of the level, and where certain signs indicate the means of securing the levels in those parts, or other details. The plans are often accompanied by a vertical section of the workings, or their projection on a vertical plane. The scale of the drawings not being fixed by Act of Parliament varies very much, 8 or 10 fms. to the inch is often used: if a representation on a large scale is required 5 fms. to the inch is adopted.

The lecturer then referred to and exhibited a beautiful drawing of the Belgian coal field, by Mr. Thim, showing the range of the beds between certain levels over the district.

THE IRON AND STEEL INSTITUTE.

The annual general meeting of members was held in the theatre of the Institution of Civil Engineers (by permission of the Council of that institution) on Tuesday and following days.

Mr. W. MENELAUS (Dyblais) in the chair.

Mr. JOHN JONES (the secretary) presented the annual report and statement of accounts for the year 1875. It appeared from the report that the institution continued in a flourishing condition. The total number of members elected during the year had been 161; while the total number of members upon the books at the end of December last was 891. The distribution of members was shown in the following statement:—North of England, 175; Scotland, 83; West Coast, 77; South and West Yorkshire, Derby, Lincoln, and Nottingham, 87; Staffordshire and Shropshire, 111; Lancashire, Cheshire, and North Wales, 115; South Wales, 63; London, 92; other districts, 27; America, 18; and the Continent of Europe, 43. The accounts for the past year show that at the commencement of 1875 there was a balance in the hands of the treasurer of £242 13s. 3d. The receipts, including the balance, had been £2492 6s. 6d., and the expenditure during the same period was £2144 18s. 6d., leaving a balance in hand at the present time of £347 19s. The council had gone into the list of subscriptions in arrears, and found them to amount to £251 8s. on Dec. 31st last. The stock of journals and transactions represented the sum of £366. During the year 1875 three general meetings were held—two in London and one in Manchester—at which a number of papers were read by various gentlemen. The council received an invitation from members in the vicinity of Manchester to hold the autumn meeting there, and it was accordingly done, and was highly satisfactory. The council also expressed their best thanks to the members of the local executive committee of the iron trade of North Staffordshire, to the owners of works that were opened for inspection, and to others. The council had awarded the Bessemer medal for 1875 to Mr. R. F. Mushet.

The CHAIRMAN, in moving the adoption of the report and statement of accounts, congratulated the members upon their satisfactory character.

Mr. I. LOWTHIAN BELL, seconded the motion, which was then put to the meeting and carried unanimously.

The retiring vice presidents and members of council—Messrs. J. T. Smith, Walter Williams, Edward Williams, John Lancaster, Sir James Ramsden, W. S. Roden, C. W. Siemens, and E. F. Smith—were unanimously re-elected.

The PRESIDENT, upon the members re-assembling on Wednesday morning, said that they had already heard that the council had resolved to present the Bessemer medal to Mr. R. Mushet, who was the son of that great worker in metallurgy, and the discoverer of blackband ironstone, which had founded one of our greatest industries—the Scotch iron trade. Mr. Robert Mushet had followed closely in the footsteps of his father during his whole working life, perhaps the most important of his successes being the invention of the spiegeleisen process in connection with the manufacture of Bessemer metal. The addition of the spiegeleisen was one of the most useful inventions connected with that manufacture, and was well worthy of being associated with the Bessemer process—in fact, one was a complement to the other. It was Mr. Mushet's invention that made the Bessemer process the great success it now was. He regretted to say that Mr. Mushet had been for many years suffering from ill health, and that he could not possibly attend the meeting—indeed, he had written to their secretary in reply to the notice that was sent him announcing the award of the council expressing doubt whether he would be alive at the date of the meeting, and asking that if not it might be handed to his widow. Under these circumstances the council had considered it advisable that a representative of the Institute should present it to him, and as he was residing in his (Mr. Menelaus's) neighbourhood he had undertaken to make the presentation on his behalf.

Mr. BESSEMER congratulated the Institute upon the award which had this year been made of the medal which bore his name. The members were all aware of the little difference which in the earlier progress of his invention had existed between himself and Mr. Mushet, and which he was sure they now both equally regretted. That Mr. Mushet's invention supplemented his own there was not a shadow of doubt, and it was not now necessary to refer to the circumstances which caused the early disputes, and they had long since buried the hatchet, and for many years past they had been good friends, and had, he believed, respected each other. He was happy that the medal had been presented to Mr. Mushet, for he was sure that no one more richly deserved it.

The PRESIDENT then called upon Mr. Marsh for some remarks on Mr. Sandberg's paper on the strength of rail joints.

paper "On the Strength of Rail Joints." Mr. MARSH pointed out that the weakness of a fish-plate was always the bolt. He thought that Mr. Sandberg had gone to the extreme, and had had to add to the rigidity in any part of the rail was bad; what they wanted was uniform bearing. He did not object to the fish-plate being strengthened, but it was an error to make it stronger than the rail.

Mr. COWPER remarked that, as they all knew that steel was stronger than iron, he would like to ask whether steel fish-plates had ever been used with iron rails. The PRESIDENT said that they had made many steel fish-plates, but they did not go beyond the gates of the works. They had also made iron fish-plates for steel rails, though he could scarcely understand why that was done. Manufacture of the fish-plate was too good to have the form of fish-plate satisfactorily settled, for the make it difficult to roll.

Mr. SANDBERG differed from Mr. Marsh as to not wishing the joint to be as strong as the rail. He also found it best to have the bolts as small as possible. Mr. NORDENFELT said that as to steel fish-plates, the circumstances now and steel fish-plate against a soft iron rail would sometimes be objectionable, from its quality, he thought that steel would now be found more satisfactory in every way.

The next paper discussed was that of Mr. G. J. Snelus, on "Fire-clay, and Other Refractory Materials." Mr. PATINSON regarded potash and soda as the most detrimental to the ganister, the larger the proportion of these the less refractory was the brick. Mr. Snelus had mentioned the great difference between Stourbridge and Newcastle bricks, and found the former much more infusible than the latter. Now, the analyses of these only showed a difference in the quantity of potash and soda—the other ingredients were practically the same. He thought that any analysis which did not show the percentage of potash and soda was of little practical value.

Mr. WHITEWELL mentioned the respective durability of different bricks in his hot stove. Mr. I. LOWTHIAN BELL remarked that it was essential in making a comparison of bricks that the conditions of the tests should be precisely similar. The temperature of a Whitwell stove was a low temperature, and the destruction of a brick in it would proceed from a different reason. Much time was carried over which contained elements which mixed with the infusible brick formed a very fusible compound.

Mr. SNEELUS thought the extent to which the potash would reduce the refractory character of the brick would depend upon various circumstances. As to the effect of potash, although they were red with oxide of iron, he believed that the potash of iron consolidated the brick, and that the bricks containing it did not expand to the same extent as a pure silica brick, whilst the non-expansion prevented breaking away.

The PRESIDENT said that the council had for some time had under their consideration the question of introducing subjects by some more easy method than writing a paper, and it was going to be tested that day; he would, therefore, ask Mr. Smith to give them his experience of the use of molten iron direct from the blast-furnace in the manufacture of Bessemer steel.

Mr. J. T. SMITH, of Barrow, said that with regard to the subject of running molten iron direct from the blast-furnace, he might observe that at Barrow recently they would probably have left unmelted. They had since learnt from the works at Scrag that could be done with pig iron. On the Continent he found that the converter was seldom less than 40 yards, and frequently 200 yards from the blast-furnace, yet the pig-iron was successfully dealt with without re-melting. At their works it became necessary to convey the ladles a distance of from 1½ to 2 miles, yet they had accomplished it successfully. This would be readily understood if those immediately engaged in the manufacture of iron, who would have noted that the cooling of the metal during the first half hour was very small indeed. They had made a railway cutting at the foot of the pig bed, and the locomotive runs thence direct to the converter. The process takes about half an hour, and so the crossing of the railway they arranged to make each journey occupy exactly one hour, taking two ladles with 7 tons of molten metal in each. They now get their furnaces managed better, and the practical difficulty had been very much reduced, so that he now often wondered why they did not begin sooner. As to the quality of the steel, he thought it was better. No purification could be derived from the coke in the cupola furnace, and they often found sulphur in iron which had been through the cupola, although they knew it contained none previously in transferring their metal from the blast-furnace to the converter. They got out 2 per cent. of skull in the ladle, and he was designing carriages to hold the ladle in the middle of the carriage, which would give them still greater facilities. All the scrap made was re-melted in the usual way.

Mr. RICHARDS said that in the early history of the process they were successful at Ebbw Vale in making the Bessemer steel direct from the blast-furnace, and they continued to work up to 40 5-ton casts. A crust was formed on the top of the metal, which prevented it from slopping. He thought there was no doubt that in the cupola you got rid of a certain quantity of silicon, and they had found that with 2½ to 3 per cent. of silicon the loss was 16 per cent., whilst with 1½ per cent. of silicon you got a good warm cast, and 3 per cent. better results.

Mr. SNEELUS said that for the last three weeks they had been in regular operation at Workington making Bessemer steel direct from the blast-furnace. Last week they used 450 tons directly, and obtained 83½ per cent. They did not make more than 2½ per cent. of scrap of all kinds, and never made more than 15 tons of skull, and one ladle ran 38 casts without re-lining. The quality of the metal direct from the blast-furnace was decidedly better.

Mr. CLARK remarked that in making steel by re-melting he had always found advantages to result from the admixture of at least four brands of iron. He had never met with any single brand that would work constantly with uniform results. Mr. BESSEMER was gratified to have heard the account of the direct manufacture of Bessemer metal. His earliest idea was that they should never melt iron. In his earliest experiments he used Blaenavon pig, which proved to be excellent, and led him to the conclusion that his process was applicable to every description of British pig. His second trial was with Welsh iron, and turning from the Blaenavon to that metal was the greatest blow he ever received. The Bessemer metal from Dowlais iron proved so worthless that it took him two years to recover from the shock. He subsequently obtained some excellent iron from Sweden, and traced its value to the absence of phosphorus. He next found that the Workington iron ore was practically free from phosphorus, yet the iron contained much, and upon investigation found that the impurity was brought back from Staffordshire. This being discovered the remedy was easily found, and afterwards they went on more smoothly. He was now much gratified to find that his earliest ideas were being realised.

Mr. BELL professed to know something about blast-furnaces, but knew very little about steel. In the cupola there was sometimes a diminution of silicon, but sometimes no diminution whatever, but the question was whether you got rid of the silicon in the cupola without as great a loss as took place in the converter.

Mr. H. W. SCHNEIDER said that the decrease in the price of steel had caused them to sharpen up their wits at Barrow, which would account for the changes they had made there.

Mr. HADLEY observed that if the coal were mixed with lime in cooking the sulphur would be entirely detained in the coke when the iron was melted. Mr. RILEY, an analytical chemist, raised the question of the accuracy of the results obtained with the molybdate acid process for the estimation of phosphorus, but no metallurgical interest attaches to his observations. He is probably better acquainted with a less convenient method, and has not had sufficient experience with the molybdate process. The discussion of processes of chemical manipulation at the meetings of the Iron and Steel Institute will, whatever Mr. Bell views the contrary may be, most certainly cause the assemblies to be more than rivaled there as they are already.

It was elicited that the saving by the conversion of the metal whilst still hot from the blast-furnace was from 3s. to 4s. per ton.

At the conclusion of the discussion the meeting was adjourned until the following morning, when the reading and discussion of papers was proceeded with.

THE FERROUX ROCK-DRILL AND AIR COMPRESSOR.

By Mr. H. W. DRENDRE, C.E., London.

The two tunnels, respectively known to the world as the Mont Cenis and the St. Gothard, represent two of the grandest feats of modern engineering. The history of that penetrating Mont Cenis, and the leading events attending its formation, are too generally familiar for the author to dwell now upon them; but he will say a word or two of preface as to the St. Gothard Tunnel, where the machine which he is about to describe has earned its renown. Of seven tenders for the contract, five were quickly dismissed for various reasons, the competition remaining between the Italian Company of Public Works and Mons. Favre; the choice fell to the latter, because the Italian Company required nine years to construct the tunnel, whilst Mons. Favre wanted but eight; besides this, the former only consented to let the tunnel money (£500,000 fr.) required by the company after the term of 11 years, whilst Mons. Favre agreed to forfeit at the end of nine years. The material encountered at Göschenen end was chiefly hard granite gneiss, at first full of fissures and cracks, but afterwards it was more homogeneous. The two tunnels at Mont Cenis and St. Gothard are not only remarkable as triumphs of engineering science in themselves, but they are also distinguished above all other similar works in the stimulus which their construction gave to the improvement and development of rock-drilling machinery—a branch of mechanism that deserved much more attention than it had received previously, for such labour-saving machinery. The Mont Cenis Tunnel formed the greatest trial ground ever brought to the attention of inventors and makers of either rock drills or air-compressors, and now St. Gothard is testing and condensing the experience gained at its older companion. It may fairly be said that at both tunnels every known example of rock-drill has been tried, and the principal and most successful being the "Ferroux," the McKean, the Sammeilers, and the Dubois Francos.

The weak point in all such machines is the feeding arrangement; but the Ferroux machine overcomes this difficulty effectually. The feed in this machine is on the almost principle—a certain piece of work is fed to the borer at once, and this is perforated no more is given; if the borer perform the work in ten minutes at the end thereof it gets another allotment; whilst a hard vein is met with taking (say) an hour to pierce, the borer will get no more till this be done, thus making under no over feeding can take place. Referring to the diagram, it was explained that the Ferroux borer consists of two cylinders, set end to end and fitted with pistons, rods, and a frame in the machine for tunnels, while in the machine for mines and shaft sinking, &c., the cylinders are set side by side on a common frame. The one is called the propelling cylinder, and the other the boring cylinder; the machine through a coil and enters the first cylinder, which is the propeller cylinder, in this is placed a piston fixed on a tubular rod, the other end of which

the ore is carried by the water, and falls over the edge of the two tables into a receptacle, while the ore is deposited on the face of the rotating table, and washed therefrom on to the fixed table, by fixed jets of water, and from the fixed table to a receptacle by other jets of water from a pipe carried by the rotating table.

Lead mining in North Wales is now looking rather better than it did, and some of the mines that have been recently re-opened out, and powerful pumping and other machinery put down, are likely to turn out profitable to those who have invested in them. At the Fron Frownog the lodes are looking remarkably well, and the lead is rich, and there is every prospect that it will turn out very profitable to the enterprising company who it is said have spent between 30,000, and 40,000, on the concern. A good deal of water mixed with the sand has to be contended with, requiring the changing of the buckets about every six hours. The Vron Hall Mine is being opened out by a London company, and there is every appearance of its turning out successful. The well-known Hendra and Rhosmor Mines, that at one time were most profitable, like others in the Mold districts, are still flooded; but those interested in them anticipate that the level now being driven under the Halkin Mountain from the neighbourhood of Flint will eventually be the means of draining them, as well as a vast area of valuable and highly mineralised ground, which for many years has resisted all the efforts of powerful machinery to clear. Business is very fair at the smelting works of Walker and Sons at Bagillt, and the same may be said with respect to the vast chemical works of Muspratt at Flint.

The Coal Trade has become inactive, and at many places the miners are on short time. Still, sinking operations are being carried out, in some instances on an extensive scale. At Mostyn the Hanner Colliery has been doing a steady trade; but for some reason or other there has been a deficiency of wagons. At the new winning of the West Mostyn Iron and Coal Company they are about sinking a shaft 15 ft. in diameter, for which tenders are invited. It is said that there is a project on foot to open out a very large field of coal, two shafts to be sunk in the neighbourhood of Greenfield, a short distance north-west of Bagillt, and two at Llanelly Moor, on the estate of Mr. A. Heaton. At the Battisfield Colliery, Bagillt, one of the finest in North Wales, one shaft being fully 20 ft. in diameter inside the tubbing, matters are looking healthy after struggling for nearly five years with difficulties of a most serious nature, and which probably were never before encountered in any sinking. On the surface they have reclaimed a large acreage of land from the Dee, and have sunk two shafts to a seam of coal nearly 15 ft. in thickness. There is a very large area, and the coal is of excellent quality. At Flat Marsh and Coleshill Collieries there appears to have been considerable improvement in the general arrangements.

have been considerable improvement in the general arrangements. Connah's Quay, situated a short distance from Queensferry, is increasing in importance, and from it a good deal of coal is being shipped; for coal is now being worked along the banks of the Dee, whilst extensive works are also to be found along the same route. At the Aston Hall Colliery, the lessor of which is Mr. Gladstone, M.P., and which is about two miles from Hawarden, they are making trial borings on various parts of the estate. Two shafts are being sunk at Padeswood to the cannel and other beds of coal which are known to be of very good quality in the neighbourhood. A fair business has been done in coal over the London and North-Western line as far as Holyhead. In the Mold district, however, the coal trade is very far from being brisk, so much so that in many instances the men are not working more than three or four days a week. The iron trade has been very quiet, and at Mostyn the furnaces have been put out of blast, it being found that they could not be worked at a profit, although they are the only works where pig-iron has been made on the banks of the Dee. The Sandycroft Works have been kept fairly going, the foundry being well known for its excellent pumps for the draining of mines, as well as for other specialities in connection with mining operations at home and abroad.

ROOKHOPE.—From a plan of the old and present workings of this mine, made in 1872, by Mr. Arthur Waters, manager of the Roman Gravels and Tankerville Mines, it appears that there was a continuous course of lead ore in the 15 and 25 fms. levels of more than 300 fms. in length. The mine adjoins Rookhope Burn Mines, belonging to Mr. Beaumont, M.P.; and, the new company having now got into full operation, with excellent prospects of having one of the richest mines in the district, we purpose to give a few particulars of it, basing our remarks upon Mr. Waters's plan and the report which accompanied it, and upon the operations and prospects at the present time from official data. Writing in 1872, Mr. Waters referred to the immense sums paid to the Beaumont family out of profits for two or three generations past (50,000*l.* a-year for 50 years in succession), and the apparently inexhaustible yield of the surrounding mines in the present day, as unmistakable evidences that Rookhope had the situation and all the conditions necessary to profitable mining. The principal vein in Rookhope had then been worked on a continuous course of ore more than 300 fms., and had yielded some thousands of tons of lead ore at the adit and the 15 and 25 fms. levels, but had not been worked deeper. The lower level (the 25), he said, had been driven 190 fms., all through a rich course of ore in the end and bottom, and in some places in the back, worth 5, 6, and 8 tons per fathom, which was stoped at 30*s.* per fathom, showing the easy and inexpensive nature of the ground. But to work the mine and bring up the returns to 100 or 150 tons per month he recommended sinking the shaft to another level, and when that section was well laid open for stoping he considered 150 tons per month would give a profit of 12,000*l.* a-year. At this time, and upon these prospects, the shares—15,000 in number—were selling at 5*l.* to 7*l.* each, and we now propose to examine into what the company did to bring about the great results anticipated by Mr. Waters. They erected steam-power, machinery, and dressing-floors at great cost; they worked at and above the 25 and 15 fms. levels, and raised and sold therefrom about 8000*l.* worth of ore. But there was a winze sunk below the 25, in a lode valued at 6 to 8 tons of lead ore per fathom, which the late company were unable to continue, owing to the water, the 42 not being driven far enough to drain it. Towards the work which Mr. Waters recommended to be done in order to make the mine, as he said, "vie with any of the Beaumont's in the county of Durham," they sunk the shaft 18 fms. below the 25, and drove the 42 upwards of 90 fms. towards the ore ground and the rich winze referred to; and then, some twelve months ago, and before their objects were reached, they found all their capital under the Limited Liability Act exhausted; and, after various negotiations, no alternative was found but to wind-up and reconstitute the company, with fresh and ample capital. We thus arrive at the present company in 15,000 shares of 7*l.* 10*s.* each, fully paid-up, the mine free from all debt and liability, and with nearly 6000*l.* cash capital in hand to carry on the work, which will be chiefly, for the present, driving the 42 to get under the rich winze and the long run of ore found in the 25*l.* This will be accomplished in a few months, and the great point in the mine reached. In the meantime, the agent hopes to more than pay costs from the returns which can still be raised from above the 25 and to shortly bring the mine into a dividend state. Thus, it will be seen that the mine is not only a first-class property, but that the prospects are even better than they were when the shares in the old company were largely dealt in at 5*l.* each for the same number—15,000.

INFORMATION FOR INVESTORS.—Messrs. M. J. Tallentire and Co.'s London Investment Circular of yesterday contains many remarks calculated to be of great utility to investors generally. They remark that all things considered, and there are a multitude of reflections to be kept in view, home investments of a non-speculative sound character are at the moment available for purchase on terms that should not repel but, on the contrary, that should attract the *bona fide* investor. English railways are just now depressed by reason of the break down of certain speculative combinations for a rise in prices, and even should lower prices be yet quoted for the Scotch or other lines, the prices of to-day are good enough as things go, for the great permanent use for which they are intended, and which no investor or capitalist should choose to make. They again urge the claims of the lead mining industry of the United Kingdom. At present lead mining is much depressed, and various opportunities are in the market with their shares, almost valuably seeking buyers. We

For some years past the handsome premiums offered by the Master, Wardens, and Court of Assistants of the Worshipful Company of Turners have been energetically competed for by those in the trade, and the announcement has now been issued for the current year, showing that the company intends to maintain its excellent custom. It will be recollected that the company offer their silver medal and the freedom of the company and of the City of London to any workman, whether master, journeyman, or apprentice in the trade in England who shall be the successful hand-turner in each of the three classes of competition. This year the subjects of competition will be turning in wood, pottery, and diamonds.

The competition in wood includes turning in both hard and soft wood. The qualities which will be considered in awarding the prize (Messrs. C. Hutton Gregory, J. Jacques, J. Jones, T. Eldout, and T. B. Winser being the judges) will be beauty of design, symmetry of shape, utility and general excellence of workmanship; exact copying, so that two objects produced (such as two cups, vases, boxes, or other articles), may be similar in every part, or exact measures of capacity; fitness of the work and design for the purpose intended; ability to turn, whether circular or oval, in both classes of wood; and novelty in application of turning or in design. Carving and polishing is admissible, and if skillfully done any additional effect produced by it will be considered, but it must be subsidiary to the turning. The candidate may make his own selection from the conditions mentioned; but the one who best fulfils the largest number, including the most important qualities, will be preferred. The work must be all hand-turning, produce in the lathe without special rest or tool apparatus; and the carving must be the work of the exhibitor. Specimens must not exceed 24 in. in height, and 1 ft. in diameter.

The competition in pottery, in which class Messrs. J. J. Holzapfel, Alf. J. Copeland, and W. H. Norcott are the judges, includes terra cotta, stone, earthenware, and metal, but will not embrace the conditions as to the similar class in the wood competition. Beauty of design, utility, fitness for the intended purpose, and excellence of workmanship will be considered in awarding the prizes. In addition, ornament produced by the runner or other hand tool; and also incised work is permitted, but it must be subsidiary to the turning. No competitor is to send in more than two specimens, neither of which must exceed 18 in. in height. The bronze medal of the company will be given to the competitor second in merit, and the company's certificate of merit to the third in each of the above subjects of competition. The sum of £500. to be distributed, according to the disposal of the judges a sum of 50%, to be distributed, according to their discretion, as money prizes—15% among the exhibitors in wood and 15% among those in pottery.

In the diamond cutting and polishing competition the Baroness Burdett Coutts, who is a member of the company, has placed at the disposal of the Court the sum of 50%, to be distributed in this class among the competitors according to the discretion of the judges. Specimens of work under this heading will be divided into classes, according as they are—Brilliants weighing more than one carat; brilliants under one carat; single cut; or roses. In each class a prize will be given if the exhibitor is successful. The gold medal will be given to the prize of £25, and the silver medal will be adjudged to the candidate who shows the highest excellence of workmanship in the greater number of the above named classes.

workmanship in the greater number of the above-named classes.

In making their award, the judges will consider the following qualities: Size and shape of the stone (and it is mentioned that the stones should be no thicker than is necessary to produce the maximum brilliancy); perfectness and polish of facets; form and relative proportion of facets; and perfectness of edge. The edges should be even throughout, and polished up sharp. In addition to this prize, there will be the bronze medal of the company and certificates of merit. The names of the competitors will be submitted to the committee of the judges. Messrs. John Hunt, L. Keller, and Prof. Tennant. Candidates for the first prize must send in specimens of work in not less than three out of the four classes.

The conditions of competition are the same as usual; the specimens must be each marked with a private mark or motto, and numbered, and accompanied by a list, showing for each number the grounds on which the prize is sought. They must be sent in in the name of the competitor, and must be accompanied by a card containing the name and address of the competitor, and his age, if an apprentice, and in all cases a certificate of good conduct and a certificate or declaration that he is in the trade, and that the work is by his hands only, and has been executed during the period of competition; the competitor may be required to do, in the presence of the judges, a piece of work similar to the successful exhibit of the previous year, and will not be opened until the judges have made their award. The specimens sent will remain the property of the competitor. Care will be taken of them, but the Court will not hold themselves responsible for their safety. The candidates must remove the specimens at their own cost within a week of the decision being communicated to them, but the judges will be authorised to make use of the specimens for the purpose of making a permanent display of the prize specimens. No one who has already obtained the silver medal will be eligible for the company's first prize in this competition.

THE TECHNICUM MITTWEIDA.—To judge from the number of students on the books, and the distance whence they come, the technical school bearing this title would seem to be a very useful institution. It is explained that it differs from a polytechnic school inasmuch as the latter not only teaches machine construction but engineering, chemistry, architecture, &c. The technicum having only one object in view, the energy of the student is concentrated entirely upon it, and each learns the precise bearings which the science he is being taught has upon his special business, and thus he becomes a very high class workman. The school is divided into five divisions, one for those who intend to devote themselves to machine engineering and construction, one for those who design to become superintending foremen and draughtsmen. The diploma of the school can be obtained in from 2½ to 3½ years study. It is considered undesirable that students should enter under fifteen years of age, and hitherto the ages at admission have varied from 15 to 38. With regard to the nationality of the students, there are at present 400 of them that have been entered as belonging to various parts of Germany, Austro-Hungary, Russia, Holland, Belgium, Switzerland, Italy, and the Danubian Principalities in Europe; to Asia Minor, the East Indies, and Java in Asia, and to the United States, Texas, West Indies, Chili, and Brazil in America. The several courses appear to be carefully arranged, and there is no doubt that many natives of Great Britain training for mechanical engineering would profit considerably from pursuing the course.

STAMPING AND DRESSING ORES.—According to the invention of Mr. JOHN BOYNS, of St. Just, Penzance, the lifters of the stamping machinery are about one-half the length and double the weight of ordinary lifters, and they are strengthened where the stamp-head is fixed to the lifter. The guides in which the lifters work are open at front, so that each lifter can be removed from its guide without interfering with the other lifters. The tongue by which the lifter is raised is made adjustable to suit the gradual shortening of the stamp head by wear, the cam acting on the tongue close to the lifter; or the cam is forked and acts on the middle of the tongue on each side of the lifter. The pulverising machinery consists of two grinding surfaces, the lower one being fixed and the upper one having a rotatory motion and also a rising and falling motion. The ginding surfaces are furnished with radiating ridges, and the upper rotatory surface with holes through which the ore passes. The matter to be operated upon is supplied by means of a doubly inclined box. The dressing machinery consists of a slow rotating cable divided into step-like annular divisions and a lower fixed annular cable. The earthy matter mixed with

These enormous deposits of ironstone, so conveniently situated for export to England (it is estimated that it can be sold on the spot at 4s. 4d., or delivered in England at 14s. 11d. per ton), are of the greatest interest from the peculiar formation of the deposits above ground, rising to 600 ft. above the surrounding level. They have been traced continuously for a distance of more than six English miles. The Næverhøghen Mines are situated along the coast of Altenfjord, about 25 English miles from Bodø, and about six English miles from the port at Nordvik, in Valnavsand. The depth of water varies from 12 to 20 ft., at a distance of about 30 ft. from the granite shore (where the fjord becomes suddenly) to the point of anchorage. It is so procured to sea without any hindrance, except that half way to Bodø the fjord narrows to such a degree that the boats are obliged to anchor on the side, the place so narrow that large steamers, to avoid the current caused by the rocks, sometimes have to wait a couple of hours for slack water at high or low water. The fjord is rough deep enough for the largest vessels. In the coldest of winter the temperature of the water never falls below Zero, and in the middle of summer the thermometer very often shows 100° Fahrenheit. On the mountains of Norway, the Valnavsand is very deep, and surrounded by high rocky peaks. From this fjord proceeds in a north-easterly direction a fine and nearly marked river, enclosed on both sides by ridges of mountains 2000 to 2500 feet high, with peaks rising still higher. The north-westerly ridge, in consequence of its geological construction, more precipitous than the southerly ridge, the top of the former is almost everywhere up to the height of 400 or 500 ft., while the upper part is divided into several separate ridges and points. The valley which leads towards Næverhøghen is

would recommend an intelligent examination of the present magnitude of the British yield of lead, and of the prospective increase of this yield with the advent of better times.

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers), Finner's Hall, Old Broad-street, write to us as follows:—

WEST PATELEY BRIDGE (Lead).—The formation of this district is due to a grand convulsion of Nature, which at some remote period of the earth's history upheaved the mass of limestone in Greenhill (where the West Pateley Bridge Mines are situated), forming the lofty heights of Whenside, and casting upward to the north-east the heavy masses of millstone grit, leaving a deep, crooked, and rugged cavity in the naked rock, which afterwards abraded, partly filled up, and smoothed by the rushing current of a tumultuous sea, formed the picturesque valley. This rendering of the earth's crust has evidently taken place after the deposition of the magnesian limestone, and before the commencement of that of the New Red Sandstone; as the former rock has been thrown upward, and rent into fragments all along its south-western edge, while the New Red Sandstone to the eastward does not appear to have been subjected to any such violent displacement. Prof. Phillips estimates the thickness of rocky matter removed by this displacement at 700 ft. This formation of the valley, so conducive to natural beauty, grandeur, and sublimity, was also the origin of its mineral wealth, by dislocating the veins and beds of metals and minerals with which its hills are stored, and forming a receptacle in the hollow below for the rich sediment washed from the sloping hills above. The lead, coal, slate, ironstone, limestone, and gritstone mines and quarries are all due to this violent breakage of the strata; as well as the romantic scenery, wood glens, rich meadows, and pastures which ornament its sides and bottom. The eye of the profound philosopher can alone read the pages which contain the annals of this great pre-historic period; they are written in and on rocks, in vast diluvial mounds, and in terraces, which have formed the shore of inland lakes or sea estuaries. At length the fulness of time was complete, and man became an inhabitant of the earth, but his first settlement and actions are alike lost in the dark mist of antiquity. That the Romans worked the mines in the Pateley Bridge district we have the most satisfactory proof in the existence of pigs of lead bearing the Roman stamp; two were found in 1735, one of them, preserved at Ripley Castle, bears—L.M.P. CAS. DOMITIANO. AVG. COS. VII.—BRIG. Thus proving that those pigs were cast as early as the year 81 of the Christian era; the syllable BRIG indicates the territory in which they were raised.

I. X. L. (Gold and Silver).—Large investment purchases continue to be made, and already heavy transactions have taken place at a premium. The Consolidated Virginia Mine, upon the same mineral belt, returned in profits last year 2,500,000 sterling upon a capital of 100,000; as a feature strongly in favour of I. X. L., it may be mentioned that the Consolidated Virginia Mine was sunk 1000 ft. before meeting with any ore to value. I. X. L. has had ore from the grass shoots downwards, and improving with each level. With reference both to Exchequer and I. X. L., Mr. Chalmers has stated that when these mines shall have been sunk 1000 ft. the result will far exceed anything yet realised from the richest of the Comstock mines; the strongest evidence as to the sincerity of this opinion is to be found in the fact that Mr. Chalmers has undertaken to manage the I. X. L. Mine without any salary whatever until dividends are paid to the shareholders. Mr. Romaine, C.B., after a personal inspection of the mine, has become a large shareholder; and a distinguished engineer, who also visited the mine, has likewise become a large shareholder, and states that if the English public could be made to understand the great value of the property the shares would be readily absorbed by investors at a considerably higher level of quotations than those now ruling. The mine is not only of enormous value, because its ores are exceptionally rich, but because it has also, in the shape of wood and water, unusual facilities for an extensive and economical development. The directors receive no remuneration for their services except out of net profits, and the expenses in London are limited to rent and a small salary to the secretary.

CONDES DE CHILI.—Previous notices have dealt with the internal government and administration of this Republic, as showing the advantages and facilities for the safe and satisfactory development of its mines. Mention may now be made of the fact that there is sufficient wealth in Chili, and the capitalists have sufficient confidence in the Government to advance them all they require; but as capital in Chili is 12 to 14 per cent. per annum, it answers the purpose better to take it in England at half the expense. Property increases in value every year, and farms which 10 years ago were rented at 2000l. per annum can now be rented at 5000l.; living is also much more expensive. There are several banking establishments in the country, with banks in all the principal towns; some have a paid-up capital of 2,000,000l., and yield an average of 6 to 8 per cent. for six months. All the large enterprises of the neighbouring Republics are carried on with Chili capital and Chili labour, and were it not for these neither the salt-petre bonds of Peru and Bolivia, nor the mining enterprise of both these countries, would produce anything at all. The communication with England is now principally done with steamers; the Pacific Steam Navigation Company has a fleet of upwards of 60 steamers, the largest and finest in the world, trading between Liverpool and Valparaiso. Our trade with Chili is so important as compared with the trade she has with other nations, that it is unjust to consider her a defaulter when she is so honourable and punctual in fulfilling her engagements; it is the more to be regretted because Chilians admire and copy as far as possible our laws, enterprise, and industrious habits, and actually feel hurt (proud and independent as they are) that England should speak so unjust and so undeservedly of them. The public debt of Chili is by no means large, and their credit is good, the 7 per cent. being now quoted 100 to 102. As the *World* with great truth has recently said, "Chili has always paid her debt honourably, and, no doubt, will continue to do so." Chili has exported in metals and minerals alone since 1844 the value of 77,210,458l., and in agricultural produce 34,856,420l.; total up to 1874, 112,076,878l. Undoubtedly Chili is not so rich as many of her sister Republics, and the only means it has to increase the revenue is to promote intelligence and stimulate the inhabitants to industry, and the exchange of its products with other countries, which is the constant aim of the Chilean Government.

ARGENTINE (Gold).—Enquiries to hand indicate that there are some mistaken ideas with regard to the extent and producing capabilities of the property owned by this company. As to its extent for all practical purposes it is unlimited, comprising in all 14 mines; along these the native miners have worked to as great a depth as the water allowed them. As to the producing capabilities of the property, it is admitted on all hands that when the mines are fully opened out the returns of gold will depend upon the scale upon which operations are carried out. The Piqué Mine originally belonged to some native gentlemen, who got the water down sufficiently low to break 15 tons of ore; the gold obtained weighed 43 ozs. 7½ dwts. The lodes are traversed by elvan and cross courses, a feature which has invariably been shown to be most favourable for the production of large deposits of gold; in fact, the property contains all the elements which can be desired by the most scrupulous miner, Captain Joseph Vivian, who has been practically acquainted with the properties for some time, says—"Notwithstanding the brilliant prospects we have before us, perhaps you will be surprised when I tell you that the profit to begin with will be comparatively small—probably not exceeding the sum of 2500l. per month. This will be attributable to the small field upon which the operations will be confined for breaking rich gold ore, but after the Piqué shaft has been sunk so as to open out a few levels and lay open extensive stopping grounds—saying nothing of the south mines, where chances of success are equally as good—the profits will be something enormous." To this statement the same well-known expert has added that "it is my opinion the time is not far distant when we shall be able to boast of being in possession of the most valuable mining property in the world." The machinery and property on the mine, together with the work done (all available for the pre-

sent company) is worth over 100,000l. The climate is delightful, and very salubrious, provisions in abundance and of good quality, and very cheap. The first remittance of gold is expected in a few weeks, the announcement of which may be fairly looked upon as the beginning of a substantial and permanent rise in the market price of the shares, which have been largely dealt in at quotations.

EBERHARDT AND AURORA (Silver).—Shareholders cannot unduly estimate the value and importance of the main object their able and successful manager, Capt. Drake, has in view in visiting his colleagues in London. Almost hopelessly insolvent was this enterprise when Capt. Drake volunteered to undertake its management; yet in a short time the entire indebtedness was liquidated, a new mill erected, the mines placed in a condition of gradual productiveness, and withal a net available balance in the bankers' hands of not less than (say) 12,000l. The mines before were never in their present condition, either as to immediate profits or prospective returns. So favourable is the feature, especially in this formation, that in depth the character and value of the veins improve for this reason, and the proposal Capt. Drake is about to submit to drive a tunnel through Treasure Hill is of incalculable importance. Beyond the significant fact that this deep tunnel will be a cross-cut (so to speak) intersecting the vein at a greatly increased depth, the general development will be thereby carried on at a considerably reduced expenditure. Operations need not be discontinued during any portion of the year. The tunnel is estimated to cost between 25,000l. and 30,000l. Eberhardt shareholders, viewing their own interest, must unanimously support Capt. Drake in the bold policy advocated, by which he believes he will make Eberhardt and Aurora equal to any upon the Pacific Coast, and demonstrably proving the long-held theory that the white pine ore deposits enrich and enlarge in depth. The shares have been flatter, but at present prices should be purchased without delay.

BLUE TENT CONSOLIDATED HYDRAULIC (Gold).—Since the announcement that the first "clean-up" of the season has yielded gold to the value of 140l. per day, these shares have been in considerable demand. No period is so opportune or advantageous for the purchase of shares in gold washing companies as at the commencement of a water season; unusually heavy snowstorms ensure an abundant supply of water for more than an ordinary length of time. The income of a gold-washing mine can be calculated with great certainty by the volume of water owned or commanded. This is really the controlling circumstance in fixing the income to be derived, since by the use of the water alone can the resources be made available, and this agent can be made useful only as the work of washing lays open new and otherwise unavailable bodies of the gold-bearing gravel. Various calculations have been made as to the gold contained in the large area of gravel possessed by this company, and the most moderate place its net value at the sum of 44,256,643l. Without the important auxiliary water, supplied by the new 30-mile aqueduct, trustworthy experts have placed the net profits at 25 to 30 per cent., calculating the gravel to yield a much less percentage of gold than is now being realised. Shortening the water season to only eight months, and limiting the supply to 3000 in., the net profit will be equal to 216,000 per annum. It has been very properly observed that when the permanent and remunerative character of these deposits come to be better known, and it is understood that they are good for generations to come as well as for to-day, they will rise in the public favour steadily, and their value find expression in the constantly appreciating value of the shares.

STOCK EXCHANGE (GENERAL MARKETS).—Since the middle of the month prices have gone both up and down; though this fact, added to the complication of the "account" in one sense, it certainly proved a relief. One satisfactory experience is quite beyond question—the extent to which railway securities have been taken up by permanent investors. There are several reasons why this should continue. Money is not only abundant and cheap, but getting more abundant and cheaper.

RAILWAYS.—Owing to the extent of the recent decline, some well-known railway securities are now obviously worth the attention of investors. For two or three years past speculative operations have raised the most favourite stocks to practically prohibitory prices, and ordinary purchasers have, in consequence, been discouraged. The tables are now turned, and in the present dearth of acceptable new creations, the change must be welcome to a very large class. From the scarcity of stock at the settlement it is to be inferred that all that has been said about the investment purchases of the past fortnight proves to be true, while the subsequent fall shows that speculators are still operating for a decline. Apart from the permanent consideration affecting railway property the general condition of the stock market favours the downward movement, and this week and next traffic returns will appear very unfavourable, from the fact that they compare with the Easter receipts of last year.

FOREIGN BONDS.—The principal fluctuations have been in Turkish, Egyptian, Argentine, Peruvian, and Spanish. As to Egyptian, the notification that the April engagements are provided for, and that the Viceroy contemplates publishing what is called the "financial part" of Mr. Cavé's report, had at one time a good effect. The recent fall very much favours the dealers in our market, as for some time past they have been selling freely to Paris purchasers, and to a large extent a fall was relied upon to enable the delivery of stock to be made advantageously. Turkish securities have also been freely sold, the Fives at below 16, a price which can only be justified by the prospect of a long period of entire suspension of payments. There is no doubt that the political insecurity of the Turkish Empire has a great deal to do with the present depondency. The full service of the Turkish debt would take about 15,000,000l. a year, and surely if the country remains intact the temporary suspension of this payment, or its reduction by half, would leave a revenue of great importance upon which to regenerate the nation. No bankrupt country ever held the power of recuperation in its own hands more entirely than does Turkey. Most other stocks in this department have given way, thus showing in the prevailing confusion that the worst and the best are equally prejudiced by circumstances not really affecting any of them. The only explanation must be the demoralised state of the market for this form of investment. It is impossible to give any adequate reason for the panic feeling that has prevailed in this department since the settlement on Thursday. There is, no doubt, room for some distrust, and sales may also be induced by the necessities of holders; but, after all allowances, there is a great deal quite unaccounted for. Seldom has there an opportunity occurred for *bona fide* investors to make a judicious selection at a level of quotations that cannot possibly fail to well repay for any amount of capital thus employed.

MISCELLANEOUS.—Imperia Ottoman Bank shares fell at one time to 40 per cent. discount. Some Colonial Government debentures have shown weakness. Foreign and Colonial Government trust certificates have fallen in sympathy with the decline in the foreign market, but there can scarcely be much more adversity to befall this class of investment, and the recent reports of the several trusts of this name illustrate the soundness of the principle upon which they were formed; instead of getting 5 and 6 per cent. per annum interest, many of the certificate-holders would (but for these trusts) be fellow sufferers with the holders of defaulted or depreciated bonds. The Stock Exchange settling days are April 12 and 23. The Bank rate of discount is 3½ per cent.

CHEMICALS, MINERALS, AND METALS.—(Messrs. J. Berger Spence and Co., March 29)—Soda: Cream caustic, 60 per cent., 12l. 5s.; white, 60 per cent., 12l. 15s.; soda ash, 13 15d. to 13½d.; soda crystals, 4l. 10s.; 14-carbonate, 11l.; salt cake, 2l. 15s.; Glauber salts, 2l. 17s. 6d.—Bleaching Powder: At 6l. 15s.; for the whole of 1876, 7l. 5s.—Alum: 7l. for loose lump; ground, 8l.—Aluminium cake, 8l.—Nitrate of Soda: 11s. to 11s. 6d.—Ammonia: Sulphate, grey, 18l. 12s. 6d.; white, 19l.; carbonate, 8d.; muriate, 30d.; all ammoniacs, firsts, 15s.; seconds, 4s.—Potash: Muriate, 80 per cent., at 6l. 5s. to 6l. 7s. 6d. l.o.b.; 50 per cent., 4s.—Chloride, 25d.; bicarbonate, 4½d.—Iron: Prussiate, red, 2s. 2d.; yellow, 11½d.; chloride, 25d.; bicarbonate, 4½d.—Iron Salts: Green and rusty copperas, 55s.; in casks or barrels, 60s.—Copper Salts: Sulphate of copper, 22l.—Litharge: Best flake, 24l. 10s.—Sugar of Lead: Brown, at 25l. 10s.; white, 39l.—Acid: Tartaric, English, at 1s. 6d.; foreign, 1s. 5½d.; oxalic, 5d.; sulphuric, 3l. 10s. to 3l. 15s.; rectified, 6l. 10s.; picric acid, 1s. 9d. per lb.—Arsenic: 12l. 15s. to 13l.—Magnesia: Epsom salts, 3s. 17s. 6d.; refined, 4l. 10s.—Esparto: Oran, fair to best, 7l. to 7l. 15s.; Susa, fair to good, 8l. 5s. to 8l. 15s.; Spanish, fair to best, 10l. 15s. to 11l. 10s. per ton; Tripoli, good ordinary,

5l. to 6l. per ton.—Brimstone: Best thirds, 6l. 15s.—Resin: Common strained, in casks.—Phosphate of Alumina, 3l. to 3l. 10s. per ton.—Pyrites: Spanish, common, 5½d.; non-cupreous, 6½d.—China-clay: 15s. l.o.b. Cornwall; best cupreous, 24s.—Phosphates: High strength, 80 to 85 per cent., 1s. 4d. to 1s. 5d. per unit; Estremadura, 1s. 3d.; ordinary, 60 per cent., 1s.; precipitated phosphate of lime, 70 per cent., 1l. 15s.; super-phosphates, 80 per cent., soluble, 3s. 6d. per unit; to 26 per cent., 3l. 10s.—Manganese: Ores, 50s. to 100s. for 70 per cent.; iron ore, Hematite, 15s. to 22s. 6d.; colitic, 8s. to 10s.; Algerian, 50 per cent., 2s. 6d. l.o.b. U.K.—Iron: "Ayrshire" Yorkshire pig iron, No. 1, 35s.; No. 2, 34s.; No. 3 (foundry), 44s.; No. 4 (forged), 45s. net cash, or 15s. extra four months; Scotch pig (warrants), 69s. 6d.—Staffordshire bars, 8l. 10s. to 10l.; hoop iron, 8l. 10s. to 9l. 10s.—Copper: Chili bars, 77l.; B. S. ingot, 84l.; hoop iron, 8l. 10s. to 9l. 10s.; British, 79l.—Tin plates: Best charcoal, 29s. 6d.; best coke, 28s. per box.—Lead: Best English soft pig, 22l., delivered at Manchester.—Antimony: English, 23l. 10s.; Silesian, 27l.—Quicksilver: 10l. 10s.—Sweet Zinc:

Original Correspondence.

PESTARENA UNITED GOLD MINING COMPANY.

Sir,—Shareholders, who through being disheartened by years of disappointment resulting from the will-of-the-wisp nature of the gold-producing ores in the veins of this district and the great difficulties attending the extraction and separation of the precious metal, will appreciate the kindness of "A Shareholder" for having so prominently drawn their attention to the improved state of circumstances attending the development of these properties. It is certainly to be hoped that the "long lane" has at length reached its "turning" point, and that the favourable results now being effected under the auspices of the present distinguished management will be only a precursor to more extensive and remunerative returns. I have on several occasions sought information from the present managers—Messrs. John Taylor and Sons—on the prospects of these mines, and have been buoyed up by their assurances that although the operations hitherto carried out have not realised their anticipations, yet these disappointments assumed more of the character of a regret than in consequence of the "original works" not having been planned in conformity with the (may I write "first") principles of scientific mining, considerable difficulties had to be encountered from time to time, which necessarily delayed the completion of the incline shaft, from the completion of which progressive work so much was hoped for by the engineers in charge. Now the rich strata of gold-bearing rock are tapped at the bottom of the Pestaena Mine—the expenses of exploring and raising the ores from which had hitherto absorbed all the profits—I trust that the results will exceed our most sanguine expectations, that the small amount of debentures subscribed for be soon paid off, and Pestaena, with the splendid Val Toppa, will be again ere long in the dividend-paying list. Already I find enquiries are being made on "Change" respecting our shares, and that a considerable quantity have been taken off the market.—City, March 31.

[For remainder of Original Correspondence see this day's Supplement.]

Meetings of Public Companies.

THE GREAT LAXEY MINING COMPANY.

The following reports will be read at the forthcoming half-yearly meeting of shareholders:—

March 28.—The Insular directors have much pleasure in calling the attention of the shareholders to the annual balance sheet and report from the managers respecting the operations at Great Laxeay during the past half year. The directors are of opinion that the figures and statements therein contained will prove satisfactory to the great bulk of Great Laxeay shareholders. At the April meeting it is the intention of the directors to bring before the shareholders the necessity of providing the permanent assistance of a steam vessel by purchase, charter, or otherwise, for the purpose of efficiently continuing the delivery of ores when sold, which has been found by experience to be a matter of great importance and benefit to the company. The next dividend will be declared on April 11, the day before the general meeting.—GEO. W. DUMBLELL, JAMES SPITTALL, CHARLES CLEATOR.

March 29.—In contemplation of the approach of the April half-yearly general meeting of the shareholders, we have much pleasure in submitting for your consideration the following report of our operations at the mine for the past half year. While the result of our labour has not been exactly what we could wish, yet we feel sure that, upon the whole, the working of the mine and the general results obtained will be regarded with satisfaction. According to custom, we will commence with a report upon the underground workings, starting from the bottom of the deep mine at the engine-shaft. In the 235 we regret to say that up to the present no important change for the better has taken place. We still have occasional good stones of ore in the south end; upon the whole, the end is promising in appearance, and we continue to look forward with considerable interest in this direction. The north end of this level is poor for ore; it is now within about 15 fms. of the end driving south from the Welsh shaft. In this space of ground we do not expect to meet with much, if any, mineral. The end of this level going north from the Welsh shaft is nearly up to the line of ore ground indicated by the level above, and may very shortly be expected to enter upon a good and continuous run of productive ground. As soon as the water is drained we purpose sinking a winze in the 230 fm. level, some distance in advance of the 235 and north, and drive therefrom north and south in order to facilitate the speedy opening up of the length of ground in this direction. We consider this course necessary and important. The winze being sunk 20 fms. north of the Welsh shaft is down about 4 fms., and is now on an average 25l. per fathom. The 230 and north after passing through the slide got into some nice ore ground for about 7 fms., worth on an average 18l. per fathom. It then passed through some 5 fms. of poor ground, and again came upon ore; the present value of this ground being about 20l. per fathom; we expect that, as in the case of the level above, we shall here get a long run of fairly rich ore. No. 1 stop in the roof is worth 40l. per fathom, and No. 2, 20l. per fathom. The winze recently commenced in the 210 north is worth 25l. per fathom. The 210 and north during the past six months has varied considerably from time to time. At present it does not present any marked improvement, still the ground is promising in character, and we expect very shortly to be up with the rich ore seen in the 190 and 200 fm. levels above. The ground in the 200 north became poor, and the lode split up. Fearing that the branch followed might not be the main portion of the lode we put in a cross cut for a short distance, and found a rich lode to the east, worth on an average 60l. per fathom. We have been driving upon this for about three months, and it has again improved, present value being 80l. per fathom. Two new stops in the roof of this level are worth 20l. and 30l. respectively. The 190 and north has been all the half year in a fine rich lode, worth on an average 90l. per fathom; and we are still driving on a lode worth 70l. per fathom, which, however, is not quite so good as present as it has been, but we expect it will shortly improve again. The 180, 165, and 145 levels north from the Welsh shaft are all held to the corresponding levels in Dumblell's. We have only to report upon the stops in this part of the mine. Two good stops are being worked in the roof of the 185, valued respectively at 30l. and 45l. per fathom. There are three stops being worked in the 185, one in the sole of the level worth 25l., and two in the roof worth 35l. and 40l. per fathom.

Dumblell's Shaft. It became necessary to resume the sinking of this shaft, which has been proceeded with accordingly. The shaft is now down about 3½ fathoms below the 200, a slip lodge cut, timbering, sump head, &c., completed, and sinking again under way. The lode in the bottom of the shaft has been small, but, with a little more work, worth at present about 40l. per fathom for the length of the shaft. No time will be lost in pushing forward the sinking and putting out a deeper level. The driving of the 200 north has been suspended for the purpose of sinking the shaft, but can now be resumed. The end at present is poor, but there is a chance of setting down from the sole of the 185 a little further north, which we expect to reach in a few fathoms. The end going south is now about 40 fathoms from the shaft. The lode has been unusually changeable, and intersected by cross-heads and oblique joints. Sometimes the lode has been worth 50l. per fathom, while at others it has been wholly unproductive. The average value for the 40 fathoms may be taken at about 35l. per fathom. The end is at present poor, but, looking at the lode in the 190 and in the deep mine now driving to meet this lode, we anticipate a great improvement; the distance between the two levels, however, cannot be great. One stop is being worked to the north in the roof of this level worth 30l. per fathom.

The end in the 185 north still continues unproductive; the appearance of the lode is not promising, but we are still very hopeful of soon falling in with something good in this direction. There are two stops to the north in the roof of this level worth 40l. and 15l. respectively. The lode in the 170 and north has been comparatively unproductive; it now promises to improve. At the same time, the eastward portion of the lode will, of course, be properly probed by cross-cuts. On opening a branch in the side of the level near the shaft, some rich ground has been discovered, worth when laid open 50l. per fathom. Five stops are being worked in this level, two in the sole north of the shaft worth 15l. and 25l., two in the sole north of the shaft worth 45l. and 20l. per fathom, and one in roof worth 20l. per fathom. Four stops and driving of the 155 and north has been suspended for the present. Four stops and one winze are being wrought upon here, one stop to the north of the roof and one in the sole, and the winze going down to the 170 north and one in the sole worth 50l. and 60l. respectively. There is also a stop in the roof and one in the sole worth 25l. and 15l. respectively. The 140 and driving north produces a little blende only; the appearance of the ground is congenial, and we look for an improvement. We are much pleased to be able to report that the south end of this level is now in good order, and is very encouraging to know that there are good reasons for expecting that this drive will lay open a considerable length of high-class ore ground. The end of the level will pass over the stops in the 185, south of Dumblell's shaft, and also over the 145 in the deep mine. There was a quantity of rich ore in the roof of this level, and the 125 and has been continued through a productive lode, of an average value of 25l. per fathom; the end just now is comparatively poor. We have much satisfaction in reporting having commenced driving between the 110 and 125 north, upon the northernmost section of ore ground, which will greatly facilitate working in that direction, besides which, as soon as sufficient ground is excavated at the foot of the winze two new stops will improve

BRITISH MINES.

GREAT EAST FOXDALE.—E. Bawden, March 25: We have not yet got to the ore ground in the East 8th level, as there are about 5 or 6 fms. more to drive before we reach the perpendicular of the ore bearing part of the lode in the level above. We are pushing on this portion of the work with all speed. This week there are two men put to drive west in this level, which is a very good trial, nothing having

to come over at once to arrange for the removal and setting up of engine, &c. We shall sample 50 tons of lead this day fortnight.

— Telegram, March 1: The shaft is down 12 fms.; the lode is about the same—3 ft. wide, containing lead, blende, and copper. No change elsewhere.

NORTH TRESKERBY.—R. Pryor, March 29: On Saturday last we set the following bargains:—The shallow adit level, to drive east of Doctor's engine-shaft,

the tin lode, is worth 4. per fathom. There is a good lode of tin in the back of the 60, just under the 50 and east, we, therefore, hope to intersect the same run of tin ground in the 50. The 50 west is worth 5/2. per fathom. There is nothing new to report on in the boundary shaft.

SOUTH CWMYSTWITH.—J. Kitto, March 23: The only change of any import-

1940

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: The Sutor Tunnel; the Richest Mine in the World; Mineral Wealth of Arizona; the Maxwell Land Grant and Railway Company (F. M. F. Cazin); Rossa Grande Gold Mining Company; Mining in Queensland; Gold Mining in it is (C. J. Harvey); the Central Swedish Iron Company; Linares, Fortuna, and Alamos Mines; Wearable Steam and Coal Stokers (P. H. Hare); Sunnyside Mines, Wexford (G. H. Bawden); Broadford Mine, and its Management; British Mining (G. H. Bawden); the Lead Mines of Derbyshire; Prospects of Cornish Mining (T. Vosper); Gold in Wales, No. XXIV. (T. A. Readwin); Pennerley Mine: the Iron Industries of Gloucester (R. Meade). The Late Edward Gessch—In re the Native Iron Ore Company—Patent Matters—Meetings of the Economic Life Assurance, South Tolemore, Great Wharf, Medlyn Moor, Lovell, Brookwood, St. Aubyn, West Godolphin, Canadian Copper and Sulphur, and Cathedral Companies, &c.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, MARCH 31, 1876.			
IRON.	£ s. d.	£ s. d.	£ s. d.
Pig, 60 lb., Clyde, 2 1/2	15 7 1/2	2 13 9	
Scottish, all No. 1	3 2 0	3 15 0	
Bars, Welsh, f.o.b. Wales	6 5 0	6 10 0	
" " in London	7 0 0	7 5 0	
" Stafford	8 15 0	10 5 0	
" in Tyne or Tees	7 0 0	7 5 0	
" Swedish, London	14 10 0	15 0 0	
Rails, Welsh, at works	5 15 0	6 0 0	
Railway chairs	—	—	
Spikes	—	—	
Sheets, Staff., in London	11 0 0	12 0 0	
Plates, Staff., in London	15 0 0	16 0 0	
Hoops, Staff.	9 10 0	10 0 0	
Nail rods, Staff., in Lon.	8 5 0	8 15 0	
STEEL.			
English, spring	16 0 0	25 0 0	
" cast	35 0 0	50 0 0	
Swedish, keg	15 10 0	—	
" fag. ham.	21 0 0	—	
LEAD.			
English, pig, common	21 10 0	21 15 0	
" " L.B.	21 15 0	—	
" " W.B.	24 0 0	—	
" sheet and bar	23 0 0	—	
" pipe	24 10 0	—	
" red	24 0 0	24 10 0	
" white	26 0 0	26 10 0	
" patent shot	28 10 0	—	
Spanish	21 2 6	21 5 0	
QUICKSILVER.			
Flasks of 75 lbs., ware	10 0 0	—	
SPELTER.			
Belgian or Rheinish	23 10 0	24 0 0	
English, Swansea	23 10 0	23 15 0	
Sheet zinc	23 0 0	23 10 0	

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canals; 1X. 6s. per box more than 1C. quoted above, and add 6s. for each X. Terms—plates 2s. per box below tin-plates of similar brands.

REMARKS.—No new feature has presented itself which calls for special comment. The markets generally are quiet all round. Sales are, as a rule, not pressed, but buyers do not come forward to an extent to afford such support as to inaugurate a period of activity. Nor can this be so until the conditions of trade undergo a very important change. A measure of consolation as to the dreary position into which some metals have fallen may be gathered from the tone of the reports which appear in the papers regarding almost every branch of commerce. Almost all trade throughout the country is very quiet, so that metals are not an exception, but only another example of the rule. Surely it is fair to argue that when other trades are so quiet, and the general stagnation is displaced by the normal activity which is at once the pride and characteristic of this commercial country, so important a staple as the metal trade is sure to share in the general prosperity. It is granted that there are considerations in connection with the metal trade which tend to intensify the quietness so observable in this department. The disputes between capital and labour have totally unhinged the iron trade of the country; but, although the loss resulting from these disputes has been incalculable to both parties engaged in the struggle, and to the community at large, the time may come—and we believe will come—when these evils will have passed, and once more the title of prosperity will turn. It is, of course, very discouraging to enter upon another quarter of the year—and that the usually busy quarter—with no report more encouraging as to the present state and future prospects than that presented to our readers; but the condition of affairs as they are must be accepted, and still further patience must be exercised. The favourable change in the weather will be helpful to the shipping interests, which for some weeks past have been seriously interfered with in consequence of the prevalence of high wind and stormy seas. Makers are very generally doing all they can to reduce their make as much as possible, to accommodate itself to the very limited demand; but, in spite of every effort in this direction, stocks show a tendency to accumulate, and unless the extreme measure of closing large works, which afford employment to thousands of hands, be had recourse to stocks will accumulate until a revival in trade occurs.

COPPER.—In the early part of the week considerable interest was manifested by the sale at public auction of about 2000 tons of Wallaroo copper. The attendance was large, and the copper was knocked down in various lots, but with very slight variation in price: 1735 tons of Cape copper were sold at 83s. 5s. to 84s., and 2075 tons of ingots realised from 84s. 10s. to 84s. 15s. The average rate for the Cape copper was 83s. 10s., for the ingot copper 84s. 11s. 9d., and the un-oxidised average 83s. 12s. 6d. Wallaroo copper held in second hands pending the sale has since been disposed of upon sale terms, Cape copper having realised 83s. 17s. 6d., and ingots 1s. higher. Throughout the week the market for Chilian has been inactive, and quotations are without variation. The closing price last week—77s.—may be taken as that at which Chilian bars have stood throughout the week, and at which the market closes. English tough copper rules between 82s. to 83s.; best select, 83s. to 84s.; 4 by 4 India sheets, 88s.; strong ditto, 89s. Yellow metal, 74s. The demand for English is dull, and the exchange with India is still so slow as to prove prohibitory to the shipment of metals to the East. Yellow metal in like manner is neglected.

IRON.—The history of the Iron Trade for the first quarter of 1876 will stand out in unenviable notoriety, as, perhaps without exception, the dulllest and most unprofitable of all the quarters of all the years since the iron trade of the country boasted a history at all. The most unsatisfactory feature of the case seems to be that the prospect of the future is not one whit more hopeful than the experience of the past. Look in what direction you may, there is no lifting of the cloud of deadliness which overhangs every branch of the trade. Expected orders from foreign ports, which have hitherto formed the chief outlet for our surplus stocks, do not come forward. It is of little use to wire to correspondents that the second quarter of the year has arrived when ice is not expected to form any longer an insurmountable barrier to the free interchange of commercial relations with the civilised world. Ice may melt, and sailing and steam vessels may ply their calling north, south, east, and west; but, judging from appearances, brokers will have to secure "dead weight" in a form other than iron bars, plates, sheets, or pigs—for these commodities seem to have fallen into desuetude in foreign parts just now, or, at all events, the United Kingdom is not called upon to supply the requirements of the rest of the world. But should the happy suggestion be thrown out that perhaps the home trade is sufficiently active to afford some satisfactory measure of support to the trade, it would not be an easy task to point to the centres of demand; but there would not be much difficulty in showing that the various centres of supply were lamentably deficient of work, that large numbers of establishments are barely employed half time, and these are among those exceptionally favourably circumstanced, while there are many where the men are not working nearly up to half time, and there are some—and it is to be feared that the number is on the increase—which are closed altogether until such time as shall witness the dawn of a brighter future than is promised under existing circumstances. The supply of iron is still too abundant for the very limited demand; and notwithstanding the efforts made to reduce the output, the reduction expected is not sufficient to diminish stocks.

From the North of England the report comes that rather more business has been done in pig-iron during the week than has been customary of late, but the supposition is that the slight increase is attributable rather to passing speculation, which cannot really affect the market appreciably than to any improvement in legitimate demand. The condition of the finished iron works is lamentable. So little, indeed, is doing that unless a fresh supply of orders comes forward, of which there seems no prospect, some of the finished iron works in this district must perform stand idle, for it is highly improbable that any ironmaster could be found so infatuated as to make for stock just now. No pig iron is obtainable at 68s., and No. 4 forge, 47s.; rails, 7s. 6d. to 7s. 10s., according to section. Merchant bars, plates for shipbuilding. Puddled bars 4d. 12s. 6d. to 4d. 15s.

Turning to South Wales, the prospect is not more cheering. Intense dullness is still the characteristic. The Tondra works, which have been rather exceptionally favourably circumstanced, find trade so bad that their men are to work only four days per week, while at many other works much shorter time than this is the order of the day. The railway bar iron mills fall to secure orders, for what railway bars are needed are ordered from the steelworks in preference to iron bars, and the trade in all other descriptions of finished iron may be said to be equally dull. The export return for February shows that from Cardiff were cleared 1544 tons; from Newport, 6193 tons; and from Swansea, 459 tons, in all 14,196 tons.

The market for pig iron at Glasgow opened at the beginning of the week quiet but firm—buyers offering 58s. 10s. 6d., sellers asking 59s. On Tuesday business was done up to 59s. 3s. 6d., this market closing in the afternoon not quite so firm. On Wednesday business was reported from 59s. 1s. 6d. to 59s. 3d.; to-day, 59s. 9d. to 59s. 10s. 6d.

SHIPMENTS.

Week ending March 27, 1875	Tons 10,325
Week ending March 25, 1876	8,984
Decrease	1,341
Total decrease for 1875	23,621

LEAD.—The market has been quiet but firm. Soft Spanish, without assay, has realised 21s. 2s. 6d., and a parcel of 200 tons sold for

arrival near at hand at 21s. 5s. Good soft English pig is quoted at 21s. 10s. to 21s. 15s.

QUICKSILVER.—Business has been done throughout the week at 10s., which is the last quotation.

TIN.—There has been greater activity in the tin market than of late. It opened firm at the beginning of the week, and business was concluded in Straits at 73s., at which price Australian was likewise quoted. As the week advanced the demand for Straits improved, and were reported 73s. 10s. to 74s. Business was also done in Australia at 73s. On Tuesday the Dutch sale of Banca took place, at which 24,800 slabs were put up to auction, and 7300 sold, realising an average price of 60 s. —the equivalent being about 85s. in London. Subsequent to the Dutch sale business has been somewhat contracted, and former quotations scarcely maintained.

TIN-PLATES.—There is no change in this market. The demand for tin-plates continues as sluggish as ever, and the prices obtainable are such as to leave no margin for profit. Market closes weak to-day—Straits, 72s. 10s. to 73s.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday Evening The prices of g.m.b. warrants have remained steady during the week, and close this afternoon in Glasgow with buyers at 59s. 9d., an advance on the week of about 9d. per ton. Makers' iron has been reduced this week. We quote No. 1 as follows:—Garthsherr, 67s.; Coltness, 69s.; Calder, 70s.; Langloan, 67s.; Summerlee, 66s.; Monkland, 69s. 6d.; Glenarnock, 65s. 6d.; Eglington, 67s. 6d., f.o.b. Ardrossan; Shotts, 68s., f.o.b. Leith; Kennell, 61s., f.o.b. Boness. The pre-occupations of the ironmasters incident to the annual meeting of the Iron and Steel Institute, held in London this week, have absorbed the attention of the principal members of the iron trade. The discussions have been able, and of a practical and useful character; the sittings well attended. The iron trade continues quiet, and the orders generally given out since we last wrote are in small quantities only. We have no business to report in iron rails; on the other hand, there are numerous enquiries for steel rails, and a large business has been done during the last three weeks in Bessemer steel rails. One contract for 10,000 tons was taken by the Phoenix, at Sheffield; a contract for 45,000 tons by a Welsh firm for Russia, and another for a large lot was secured by Bolewick and Vaughan. Two other contracts for steel rails have been taken by other great firms, one of which is in Monmouthshire. The prices vary. The largest lot was sold at 92s. 10s., which included all charges for delivery into a foreign port. It is thought now that the time has arrived for a substantial reduction in wages, and it is not at all improbable that the workmen are as much alive to the necessity of this step, and an increase in their hours of labour, as the masters themselves. Important steps will be taken in this direction before Quarter-day, which takes place at Birmingham next Thursday week. The tin-plate trade continues quiet and inanimate, with prices unremunerative.

Messrs. VIVIAN, YOUNGER, and BOND.—COPPER: On Tuesday last, at public auction, about 2000 tons Wallaroo copper sold at an average of 83s. 10s. for cakes, and 84s. 11s. 9d. for ingots. The average price of Wallaroo for the past 12 months has been about 92s. per ton above Chilian bars. This warrants to some extent the opinion that either Wallaroo should advance, and thus rectify this relative difference (being now only 6s. above Chilian bars), or that other descriptions should decline, seeing that the trade participated largely in the buying, owing to the relatively favourable price. As the whole quantity was sold the importer undertakes not to offer any more private contract or at auction until June 27, when a further quantity (to be delivered in June), but not exceeding 20,000 tons will be offered. Chilian bars have since been sold at 77s. cash, and 78s. 10s. with prompt payment, or 78s. 10s. in foreign and English manufactured being for the present rather nominal. TIN: The market is about 20s. per ton dearer than a week ago, chiefly owing to the small arrivals of Australian this month, and the prospect of the Dutch Trading Company adhering to the limit of 50 guineas fixed at the previous sale in January last. On Thursday last this expectation was realised, as of the 24,800 slabs Banca offered at auction, 7300 slabs sold at 50 guineas, and the remainder was withdrawn as before, in the absence of further demand at the price, equal to about 85s. 10s. The market has been somewhat quiet, though prices showed no further improvement. Straits sold up to 73s. 6d., and Australia at 63s. At the close the tendency is rather easier, and Straits are reported at 73s. 6d. forward delivery. The English smelters are asking an advance to 79s. for common ingot, which, however, is not obtainable.—TIN-PLATES rather steady.

Messrs. HENRY ROGERS, SONS, and CO.—COPPER: The event of the moment has been the sale by auction of 2000 tons of Wallaroo copper, which took place last Tuesday, the average price of the cakes being 83s. 10s., and of the ingots 84s. 11s. 9d. These prices the trade considered were a fair value, looking at the present surroundings of copper. Chilian bars are maintained at 77s. to 78s. English in second hands is offered under smelter's prices, whilst the demand for manufactured and yellow metal has very much decreased, and cannot improve till prices advance in the East or the exchange rises.—TIN: 24,000 slabs of Banca were offered on Tuesday in Holland, 7000 only finding buyers at the sale limit 50s. Straits tin and Australian are both a trifle dearer than last week, but the demand is small.—SPELTER: Foreign maintains its price, but considerable quantities of English are still offered from second hands without finding buyers. The best brands are, however, held off the market.—LEAD is a trifle firmer, with more business doing.

Messrs. FRY, JAMES, and CO.—COPPER: The most noticeable event in the market for this metal has been the somewhat revolutionary course taken by the importers of Wallaroo by their sale, on Tuesday, by public auction, of 2000 tons of their copper. The notice of this sale was given in the trade for upwards of a month, and the effect had been to cause great stagnation in fine copper generally, but especially in other Australian brands. At the sale the whole quantity found ready buyers at an average of 83s. 10s. per ton for cake, but a special condition in buyers' favour reduced the price to about 84s. per ton. The result must be very unsatisfactory to the importers, seeing that immediately before the announcement of the sale (Feb. 25) the value of this copper in the market was 87s. 10s. per ton, ordinary terms, and seeing also that Chilian (the barometer of the market) has maintained its value unchanged. It is manifest that the low average obtained for the Wallaroo is due to the course taken. To-day Chilian copper, as well as furnace material, is very firm at quotations, the latter practically off the market at 15s. 6d. to 15s. 8d. per unit for ores and regulus. English is steady.—TIN has held a steady course and a moderate business doing from day to day. For English the market is firmer, partly from improved demand and partly from the miners holding back their ores.

Messrs. SANDFORD and BIRD.—COPPER: Chilian bars show little change. The result of the Wallaroo sale appears to have given satisfaction, and the market closes this evening with more disposition to do business both in foreign and manufactured descriptions.—TIN: This market has gained strength during the week, and the action of the Dutch Trading Company in withdrawing two-thirds of their tin from the market has been expected to improve prices. There is but little business passing at the moment, however, and quotations may be considered nominal.—LEAD keeps fairly steady, and as the spring advances we may look for a moderate improvement.

Mr. MURRAY.—TIN: Foreign maintains its price at present, the deliveries from London stock for this month being good, the arrivals moderate, and shipments from the Straits and Australia comparatively small, and if these favourable conditions continued for a few months no doubt higher rates would be the result. It is easy for holders to say "This is what you are continually telling us, and yet prices keep falling," but the continued drop is the inevitable result of a supply of cheap metal, which is in the market, and still is, greatly in excess of the demand. The little business done during the week has been largely for Straits tin, for Straits and Australian for spot and forward lots.—COPPER: Chilian is exactly the price which was quoted this time last week, and is wonderfully steady considering all the circumstances; this simply shows the perfect soundness of this trade. The public sale of Australian went off at a reasonable figure, and in a manner which cannot have failed to give the utmost satisfaction to all concerned. The next sale takes place on June 27, when about the same quantity (2000 tons) will be offered, practically without reserve.

The settlement of the fortnightly account took place in the MINING SHARE MARKET this week, and caused, as usual, a good many fluctuations in prices of speculative stocks. At the Banca sale of tin 24,800 slabs were offered for sale, and 7300 sold at an average of 50s. 6d., or about equal to 85s. in London.

The shares chiefly dealt in since our last have been East Van, Roman Gravel, Great Laxey, Ladywell, Parys Mountain, Pennerley, Pateley Bridge, Wheal Crebor, Rookhope, Tankerville, West Tankerville, Van Consols, West Chiverton, Marke Valley, and a few others.

Van, 39 to 41; the directors have declared a dividend of 16s. per share (12,000l.) for the quarter. East Vans have been as low during the week as 9s. to 10s., and leave off 11 to 12. In the B cross-cut, driving north, there are spots of lead, but not sufficient to value. The lode in the 25 cross cut A is worth 10s. per fathom.

Great Laxey, 17s. to 18s.; the accounts to be presented to the half-yearly general meeting on April 12, 1876, have been issued. They show sales of lead ores from Aug. 6 to Feb. 4, 1200 tons, for 29,482l. 10s.; blende, 3392 tons, 10,800l. 1s. 4d.; total, 40,282l. 11s. 4d. Sundry sales, 217l. 4s. 10d.; balance of last meeting, 11,643l. 16s. 8d. The expenditure for labour cost was 16,406l. 11s. 1d.; merchants' bills, 16,406l. 11s. 1d.; royalty to the Crown, 4251l. 17s. 1d.; and other charges amounting in the whole to 11,282l. 10s. 2d. Two dividends were declared, one in October of 7500l., and one on Jan. 26 of 7500l., making 15,000l. for the half-year, and after transferring 1500l. to the reserve fund there is a balance of 7354l. 10s. 6d. The assets include the above balance of 7354l. 10s. 6d., and stock of ore on hand valued at the sum of 14,611l. 7s. 6d. During the last four months the returns have fallen off, owing to the decreased value of several of the best stopes, but the agents hope to resume their former rate of returns in about a month. The reserves of ore have not been diminished.

North Laxey, 1 to 1s. Roman Gravel, 1s. to 1s. 4d.; no particular change here. Tankerville, 11 to 11s.; the 167, driving east, is worth 30s. per fathom. The stopes in back of this level are worth in the aggregate 375s. per fathom. South Roman Gravel, 25s. to 30s.; Ladywell, 1s. to 2s.; Penstruthal, 7s. to 9s.; Pennerley, 2 to 2s.; Plymmon, 3 to 4s.; Pateley Bridge, 5s. to 5s. 6d.; West Chiverton, 19 to 20s.; West Craven Moor, 11 to 12s.; West Pateley Bridge, 5s. to 5s. 6d.; West Tankerville, 2 to 2s.; Glyn, 2s. to 2s. 6d.; Pennant, 5 to 5s. 6d.; Van Consols, 2 to 2s. West Assheton, 1s. to 2s.; and not so firm.

Rookhope (Lead) have been largely dealt in, and leave off 1s. to 1s. 6d.; buyers; the agent's report shows that the various points in

operation above the 25 are worth in the aggregate about 6 tons of lead ore per fathom. In the back of the 25 there is one stope valued at 2 tons of lead per fathom. Below this point there is a winze worth 6 to 8 tons per fathom, but which cannot be worked until the 42 is driven up to unwater it. Mr. Blenkiron is of opinion that the ore obtained from these shallow levels will be more than sufficient to pay costs until the 42 is driven up and more profitable ground laid open.

Old Treburgett, 7s. to 9s.; the accounts to be presented to the general meeting have been published. The sales of lead ore credited realised 10,967l. 11s. 6d.; iron ore, 52l. 14s.; total sales, 11,029l. exclusive of ores taken for royalty. The cost at the mine was 10,901l. 18s. 6d.; royalty and other charges, 958l. 7s. 6d.; London expenses, 439l. 0s. 9d., the whole showing a loss on the year's working of 1076l. 7s. 7d. In the agents' report it is stated that the ore actually raised in the year realised 12,447l. 10s. 9d., out of which the lords received 1244l., and it is this question of dues, for some time in dispute, that has kept the mine from making a good profit. Below the 70, which was driven 46 fms. through a rich course of ore, worth from 15s. to 60s. per fathom, a winze has been sunk 21 fms. behind the end, and driven 6s. fms. on a splendid course of ore, worth 75s. and 50s. per fathom, but this, until the royalty and other questions are settled, is suspended. There are also in this place three stopes worth 50s. per fathom. Carn Brea, 29 to 31s.; Cook's Kitchen, 3 to 3s. 6d.; Devon Great Consols, 4 to 4s. 6d.; the valuation of the different points in operation here is 50s. tons of copper, or 195s. per fathom.

South Frances, 1s. to 2s.; the parser has issued a circular to the effect that the Great Flat lode has been intersected at the 185 fm. level cross-cut, and although much has not yet been seen of it, the prospects are good. West Frances, 7 to 7s. 6d.; the cross-cut here is thought to be nearing the Great Flat lode at the 130; small branches of tin and copper have been met with. Dolcoath, 35 to 37s.; East Caradon, 1s. to 2s.; East Pool, 13 to 14s.; Marke Valley, 2s. to 2s. 6d.; Parys Mountain, 15s. to 17s. 6d.; South Carn Brea, 1s. to 1s. 6d.; St. Aubyn United; at the meeting held here a call of 20s. per share was made. The loss on four months' working was 821l., and the debit balance 902l. Two or three favourable points are in progress, any one of which may soon improve the prospects of the mine. South Caradon, 130 to 140s.; South Condurrow, 4 to 4s. 6d.; Tincroft, 17s. to 18s.; Unity Wood, 1s. to 1s. 6d.; West Seton, 3s. to 3s. 6d.; Wheal Agar, 2s. to 2s. 6d.; Wheal Crebor, 2s. to 2s. 6d.; Wheal Grenville, 2s. to 2s. 6d.; Wheal Kitty (St. Agnes), 2 to 2s. 6d.; Wheal Uny, 1s. to 1s. 6d.

West Tolgus, 6s. to 7s.; the lode in the 135 west is opening out well, and worth 7 tons of good copper ore per fathom. The sampling for the month is 360 tons. At Brookwood meeting there was a loss shown on four months' working of 215l., and a balance in hand of 13s. 11s. 4d. Wheal Pevor, 1s. to 2s.; West Basell, 5 to 5s. 6d.; Dylife, now the Great Dylife Mining Company (Limited), 4s. 6d. to 5s. 6d.; the month's sale of ore, 100 tons, realised over 15s. per ton, and left a profit, we understand, of more than 400l. Argentine, 6s. to 7s.; Condes of Chilli, 6s. to 7s. 6d.; Chontales, 7s. 6d. to 10s.; Eberhardt and Aurora, 7s. to 7s. 6d.; Emma, 1s. to 1s. 6d.; Flagstaff, 1s. to 1s. 6d.; Frontino and Bolivia, 1s. to 2s.; Javali, 8s. to 10s.; I.X.L., 17s. 6d. to 22s. 6d.; Richmond, 6s. to 6s. 6d.; San Pedro, 2 to 2s. 6d.; Sweetland Creek, 2 to 2s. 6d., ex. div.; Santa Barbara, 1s. to 1s. 6d.

The Market for Mine Shares on the Stock Exchange during the week has been somewhat interfered with by the fortnightly settlement, which commenced on Tuesday. Since its completion purchases have been resumed, with a generally more active market.

Van, East Van, Pateley Bridge, Great Laxey, North Laxey, Rookhope, West Pateley Bridge, Assheton, and West Assheton have been the mines mostly dealt in.

Van, 39s. to 40s.; a rush of water from the lode has prevented the men from working in the 105 during the week. They will resume driving the level on Monday. There is no alteration in any part of the mine since the report published last week. The usual four-weekly sale—5000 tons of lead and 150 tons blende—takes place next week. On Thursday last the directors declared a quarterly dividend of 16s. per share, free of income tax (12,000l.), payable on April 15. This is at the rate of about 75 per cent. per annum upon the capital of the company. East Van have again fluctuated considerably, but close 11 to 12; in the official report the lode in the drive towards Van is valued at 10s. per fathom. The agent proposes to drive outside the lode, as it can be done with greater rapidity than in the lode itself. The lode will be cut through when opposite the shaft, at which point a good deposit of ore is expected. Pateley Bridge, 5s. to 5s. 6d.; there is no change at this mine. All points are as last reported, and matters progressing in a satisfactory manner. West Pateley Bridge, 5s. to 5s. 6d.; the lode in No. 1 shaft is daily improving, and at present worth 8s. per fathom for lead. No. 2 shaft is just being re-opened. It is stated that in the bottom there is a solid ridge of lead ore 3 in. wide, left when the sinking was discontinued owing to the water. It is now drained by the deeper workings.

Grogwinion, 5s. to 6s.; the latest news from the mine reports an important improvement in the intermediate level. No. 4 lode, in the other levels, is still opening out in a masterly manner, and is yielding a large quantity of lead. The reserves of the mine are now being increased at a much faster rate than the sales of ore—that is to say, more than double the quantity sold each month is being discovered and laid open for future working, thus ensuring the permanent success of the undertaking. The May sale of ore will be about 100 tons. Van Consols, 2 to 2s. 6d.; the fine weather that has now set in will be of great advantage to the completion of the works connected with the new drawing shaft. There were 25 tons of lead sold yesterday. The mine is being opened up with vigour, and the value of the bargains as last reported.

Pennerley, 2 to 2s. 6d.; the lode in the 120 east is worth 3 tons per fathom; it indicates very favourably, and is opening out well. The 130 has about 3 fms. to drive to come under this run of ore, and the end is showing very promising for improving. The 100 above is also presenting good appearances, and yielding good spots of lead; this level is considerably behind the 120. Potter's Pit shaft will be down to the 90 by the end of this week. The excessive lead at this point induces the belief that a large deposit of ore exists at the junction, just below this level. A full report will be found in another column. Wye Valley, 6s. to 7s. 6d.; 40 tons of lead were sold on Thursday at 14s. 19s. per ton. The recent discovery in the west east is steadily improving; it is now profitable ground for a width of 6 ft., and the manager believes that it belongs to a big deposit lower down; in all probability this discovery will prove as rich as the one made some six months ago, about 100 fms. to the westward. The 22 is getting near the ore ground, and may now cut it any day. Other parts of the mine looking well, and larger returns of ore will be shortly made. Monthly report in another column. West Wye Valley, 4 to 4s. 6d.; the surface works are now being pushed forward rapidly. The manager advises, under yesterday's date, that a good lode is now being worked in the 26, and all other points looking well.

West Assheton, 1s. to 2s.; the lode has been partially cut, and the indications are considered to be encouraging. Llanidloes, 3s. to 3s. 6d.; the bottom level continues to open out well, and the level is being driven with all possible dispatch, there being at present a good lode in the end. The explorations on the north part of the lode in the old workings are resulting satisfactorily, and the cross-cuts recently started in this portion of the lode are already yielding a good quantity of lead. West Goginan, 2s. to 2s. 6d.; this mine is going on well, and opening out in a most satisfactory manner.

Exchequer shares have been largely dealt in, and close firm at 1s. to 1s. 6d.; it will be seen by the statement appearing in another column that the lowest assay of the ore would give a net return of 108,000l. per annum; the total cost of mining and milling is estimated at 6s. per ton. Each level is producing rich ore, and regular stoping has been commenced at the 300 ft. level. Regular and increasing shipments of bullion are expected forthwith.

I.X.L. in considerable demand, closing 1s. to 1s. 6d.; a document signed by all the miners and residents at Silver Mountain, sworn before a notary public and attested by him, states that they have resided in

* West Tolgus was erroneously quoted 48 to 52 instead of 68 to 72 in last week's Journal.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *aided* on receipt; it then forms an accumulating useful work of reference.

CHORES.—I would thank some correspondent of the Journal to give me any information as to buyers of red and yellow ochre deposit, the value of pure samples per ton, and whether the presence of organic matter is injurious?—G. B. L.: Prestonpans.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

CORRESPONDENCE.—The continuation of this paper will appear in next week's Journal.

Received.—"J. R." (Glasgow)—"T. N." (Maclesfield)—"J. G." (Aberystwith)—"M. J." (B. S.) (Maidenhead)—"N. J. B." (Wexford)—"M. N." (Neath)—"E. F. D." (Arizona)—"J. G. C." (A. P.) (Rosewarne United)—"W. S." (Penstruthal)—"F. L. A. T. Rodda" (Wheal Greuville)—"J. C. G." (Glasgow): Next week.

IMPORTANT NOTICE.—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the *Mining Journal* to many countries will be reduced to one fourth. Henceforth the subscription will be 10s. 4d. per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Serbia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 10s. (50 frs.).

AVIS IMPORTANT.—AUX ABONNES ÉTRANGERS DU "MINING JOURNAL."—A cause de la nouvelle CONVENTION POSTALE il y a, à partir du 1^{er} Juillet 1876, une grande diminution du prix de l'abonnement du *Mining Journal* pour bien des pays dont le taux des postes était jusqu'à présent élevé. À partir du 1^{er} Juillet le prix de l'abonnement est de 39 frs., le port compris, pour l'Autriche, Belgique, France, Danemark et ses dépendances, l'Égypte, l'Allemagne, la Grèce, l'Italie, Hollande, Portugal et ses dépendances, Roumanie, Russie, Serbie, Suède, la Suisse, la Turquie, l'Afrique septentrionale, etc. Le montant, si l'on le veut, sera touché à domicile, la fin de l'année. L'abonnement continuera sauf avis contraire.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, APRIL 1, 1876.

THE SPANISH GOVERNMENT, AND THE SPANISH ORE TRADE.

It becomes of greater importance daily that there should be no impediments which are capable of being removed in the way of the widest development of the great and growing steel industry. It is well known that the quality of the steel turned out not only depends upon the careful treatment which it receives during the process of manipulation, but also, and in a much greater degree, upon the quality of ore with which the furnace is charged. The ore which is obtainable on the West Coast has been found to possess those qualities that contribute to the making of first-class steel in a more marked degree than that to be got in any other part of the United Kingdom; but a few commercial men who have had their wits about them have for some time been looking out for an ore even superior to this, and their efforts have been crowned with success, and with a success in some instances surpassing their highest expectations. Men well acquainted with the mining of ironstone and with those geological features of a country which indicate the existence of a valuable mineral have been dispatched to, amongst other countries, Spain, and the reports which they have from time to time forwarded to those on whose behalf they have conducted experiments have, in the largest number of cases, been so favourable that negotiations have at once been entered into for the purchasing of property in that country, where ironstone of a very superior nature has been proved to lie. The purchasers of such property have, of course, had in view the exporting of the mineral mined to the shores of England, generally to be used up by themselves in the producing of steel, but sometimes to be sold to iron and steel making firms with whom they have no connection, but who, they find, are not loth to pay for it a much higher figure than they would have to give for native mineral. We know of instances in which keen men of business, having found out the value of their hidden treasure—for treasure it no doubt is—have made preparations for the raising and exporting of it to supply their own furnaces with the chief means of turning out large quantities of steel when the demand for the metal sets in in full vigour, which are very extensive, and have involved the outlay of a considerable amount of capital. In some cases, where the property purchased has been in the interior of Spain and some distance from any line of railway, the owners, considering the large sum of money which the undertaking would swallow up, have thought it advisable to get others to join them, and so form a company. An instance of this has occurred at Sheffield, where, when a few years ago the demand for Bessemer steel was so urgent, several English capitalists, with Sir JOHN BROWN at their head, were wise and fortunate enough to secure a concession of one of the most valuable beds of hematite ore to be found in the world. It was Spanish soil, and they acquired the sole right to work a large district, where, although the soft surface ore had been dug long ages before, yet remained comparatively virgin soil.

Investors in such iron ore as has and is still being discovered in the dominions of ALPHONSO XII. have not been backward in realising the benefits and advantages which will accrue to the iron and steel industries of this country from the opening up and employment of this ore by proprietors of English mills and forges, and they have not spared any necessary expense which will permit of its use. One concern, whose land lay some 13 miles from the port of shipment, finding that the only means of conveyance had hitherto been mules and bullock carts, has constructed a first-class railway from their mines, which are situated at Galdames, to the coast, and when the cost of this work was added to the sum spent in acquiring a title to the land it was found that an amount of English capital approaching to half a million had been invested. Half a million sterling has not, however, been expended for nothing, for the property which the Bilbao Iron Ore Company has purchased, and in part worked, is described as being literally a mountain of iron. The recent Carlist war has prevented the using up by English steel makers of so much Spanish ore as they would like to have been able to get for the carrying on of their furnaces, and they have had in consequence to purchase more freely from Barrow-in-Furness than they had contemplated. The railway constructed by the Bilbao Iron Ore Company had just been got in full working order, and large quantities of the mineral were being expected by English manufacturers from that source when the civil war broke out, and at once stayed its exportation. Now, however, that peace has been restored the ironstone will be shipped to this country with alacrity, and English consumers will thereby largely benefit. Much impediment has been placed in the way of the opening up of this splendid Spanish ore by the course of action which the native Government have pursued. It may be that they are jealous of the foreigners, and are beginning to think themselves capable of making iron and steel in large quantities, so as to be able not only to supply their own wants, but to compete with other manufacturers in the markets of the world. The course of action of which we speak, and of which those steel producers in this country who have purchased large tracts of this Spanish ore are just now loudly complaining, is the imposing of heavy taxes on all the iron ore exported. It is wholly opposed to the agreement which had been entered into with Government sanction before English capital was so largely invested in the country. These duties no doubt tend much to restrict the trade done; and to procure the removal, or at least a great abatement of this impost, strenuous efforts have for some time been put forth. One smaller impost is made professedly to recompense Bilbao for the long and costly siege to which it was subjected. Englishmen are not the men to shirk all claims in such a case, and a tax of this sort may admit of some defence; but though an impost of (say) 1 real per ton for such purpose might be borne without murmuring, it is clear that the

greater or ship tax imposed is merely a piece of useless protectionism. It is by no means certain that the imposition of such a duty does not involve a direct interference with English rights previously guaranteed by the Government. In any case it is evident that to maintain such an export charge must prove highly detrimental to the interests of the Spanish people, since it would lessen immensely the trade at one of their most important harbours (Portugalete, Bilbao) from whence most of the ore is shipped.

It is with great pleasure that we are able to inform those individual manufacturers, or limited liability companies, who, as we have stated, have been for some time endeavouring to induce the Spanish Government to modify, or entirely remove, these obstructions to free trade that they are likely at no very distant date to secure a successful termination of their industry. The young King at the head of the constitution seems to be inculcating a liberal policy, and he is setting himself well to work to improve the condition and see well to the manufacturing interests of his subjects. Evidence that the Spanish authorities find it needful to listen to the remonstrances which have been made against these heavy duties is seen in the fact that the Sovereign, accompanied by the Ministers of War and Marine, the civil and municipal authorities of Bilbao and Portugalete, and many of his chief generals, numbering altogether some 130 persons, has now visited the mines at Galdames of the Bilbao Iron Ore Company. The engineer and manager of the company, Mr. FREDERICK C. BARRON, acted as guide, and the whole cortege rode in the firm's rolling stock, which had been suitably draped for the occasion, and upon the firm's railway. It may be of some interest to our readers to say that the train consisted of a locomotive engine bearing the English and Spanish flags in front, and well decorated with evergreens, which, by-the-by, is quite a novelty to the Spaniards, and eight ballast wagons and one mineral wagon to serve as a break-van. His Majesty viewed the immense mass of ore and the large piles of mineral ready for shipment, and personally inspected a portion of the mine, and conversed with the manager, principally in English, in regard to the works, the mines, and the difficulties which the company had had during the war. All this shows that ALPHONSO XII. is taking a keen interest in the mining resources of the country which he governs, and it cannot be regarded as other than a hopeful sign.

The business of iron ore raising, however, even when the mineral brought to bank is of the quality which is to be found in Spain, has not always turned out to be profitable. This in some cases may be largely attributable to the export duties of which we complain, but the exceedingly small demand either for steel or iron during the past year has no doubt had much to do with it. Proof of this is found in the circumstance that the shareholders of the Marbella Iron Ore Company, who claim to be the owners of the richest ore imported into England, have received no dividend for the past year's working. The directors, however, are of opinion, that the company is in a much better position than many other concerns engaged in the same business, for though the charge for raising the ores and developing the property have been much in excess of previous years, there has been no actual loss on the year. On Dec. 1 the company had in stock 30,000 tons of ore, and of this quantity 20,000 tons, we are told, have since been sold "at a price not less than the value at which it was taken over." We quite agree with the directors of this company that a demand for iron and steel is likely at no distant date to set in, and we think they have, therefore, acted wisely in ordering an increased output, and in amply providing for any emergency. At least one Spanish iron ore company believes that it can deliver Bessemer mineral of the first class on board at Portugalete for 10s. per ton. As that figure, unweighted by more than the freightage, and such a trifling duty as we have sketched, would go far to afford the relief which the steel industry needs, and as moreover that which promotes the steel will promote likewise the coal interest of this country, we wish all speed to the negotiations at which we have hinted. These may be fairly expected to issue in a decided modification, if not, indeed, to hasten the abolition of imposts that we believe high authorities at Madrid have already admitted to be excessive.

OUR COAL EXPORTS.

The exports of coal from the United Kingdom have been marching on liberally of late, having amounted to 2,095,954 tons to Feb. 29 this year, as compared with 1,552,691 tons in the corresponding period of 1875, and 1,767,110 tons in the corresponding period of 1874. The great decline which has taken place in the price of coal since the spring of 1874 is forcibly illustrated by the fact that the value of our coal exports to Feb. 29 this year did not exceed 1,231,735*l.*, while the corresponding value in the first two months of 1874 was 1,800,319*l.* In other words, while the average price of each ton of coal exported in the first two months of 1874 was a little over 1*l.* per ton, the corresponding value in the first two months of 1876 was only about 12s. per ton. The large reduction which has taken place in the price of coal during the last two years has had the effect of stimulating the demand for English combustible in all directions, and every consuming neighbour has been purchasing more freely this year. Even Germany, although sending large quantities of her coal to Belgium and France, imported 104,959 tons of English coal in the first two months of 1876. To France we sent 647,582 tons of coal to Feb. 29 this year, against 379,905 tons in the corresponding period of 1875, and 421,823 tons in the corresponding period of 1874. Italy, again, took 191,525 tons of our coal to Feb. 29 this year, while she only imported 107,158 tons in the first two months of 1875, and 145,107 tons in the first two months of 1874. Russia, Sweden, Denmark, Holland, Spain, Turkey, and Egypt have all been larger consumers of our coal this year. Notwithstanding, also, the increased attention which is being devoted to the utilisation of Indian coal, our exports of coal to British India appear to be gradually increasing.

To the 2,095,954 tons of coal exported from our shores to Feb. 29 this year we must add 523,609 tons shipped for the use of steamers engaged in the foreign trade, making an aggregate of 2,619,563 tons. In one form or another the exports of coal from the British Isles are thus proceeding this year at the rate of 15,717,378 tons per annum. The corresponding exports in 1866 amounted to 9,953,712 tons, so that the probable progress in the exports during the decade ending with 1876 inclusive is 5,763,856 tons, giving an average advance of 576,385 tons per annum. It must be admitted that 1876 is still so young that the calculations which we have been making are not of much definite or precise value; still there can be no doubt of the general conclusion which we have endeavoured to establish—that our coal exports are increasing at the rate of from 500,000 to 600,000 tons annually. Ever if we take the lowest of these approximate totals we find—assuming that the present yearly rate of increase continues unchecked—that our probable exports in 1906 will amount to 30,717,378 tons. It may be said that the development of coal mining industry in Russia, Germany, Belgium, France, Spain, Turkey, Brazil, the United States, and other countries will check the continued increase which has been witnessed during the last 10 or 20 years in the external demand for our coal. It is certainly quite possible that this may be the case, but the experience which has been thus far acquired upon the subject points, nevertheless, to a contrary conclusion. The fact is that thus far the accumulation of capital and the general progress of manufacturing industry have outweighed every other consideration, and have led to a constant and almost unchecked expansion in the demand for our coal in foreign countries and the principal British colonies.

Of course, the old question remains whether it is an unmixt advantage that our neighbours and colonists should be thus continually burning up more and more of our stores of coal, and whether it may not prove to be the case that they are developing their manufacturing industry in reality at our expense. But now that coal has subsided to a more reasonable price in the British Isles this consideration will not, we fancy, count for much; immediate profit will be looked at, and everything else will be forgotten. When coal reached a famine price two or three years since a proposal was made—although not very confidently or seriously—that the exportation of coal should be prohibited by Parliament. The proposal was, however, coldly received—in fact, it fell so flat that it was soon

almost forgotten. During the last two years considerable preparations have been made for extending the previously very considerable yearly aggregate of our coal production. Supply and demand have been so outstripped by production that prices have fallen from 8s. to 10s. per ton. Under such conditions as these the growth of our coal exports is not likely to excite much uneasiness.

CANADA AND OUR RAILWAY IRON.

The Canadian Government is rightly or wrongly—and probably rightly—pursuing a vigorous system of retrenchment. In a young country like Canada the Government sustains a very important part, and, therefore, this action on the part of the Canadian Government is not, in our judgment, to be overlooked or disregarded. It appears to show—first, a general contraction of enterprise within the wide limits of the Dominion; and, secondly, the consequent necessity of very considerable caution on the part of English industrialists in dealing with Canadian railway companies. As regards the Canadian Pacific Railway, the amount which the Canadian Government proposes to devote to its construction in its financial year 1876-7 is \$2,810,000 as compared with \$6,250,000 in 1875-6. This is certainly a considerable reduction, but still it can scarcely be said that even the reduced expenditure is exactly synonymous with an abandonment or even an indefinite postponement of the great undertaking. At the same time the fact is tolerably clearly established that Canada will not purchase any steel rails for the Canadian Pacific Railway during the next few months. In 1875-6 the Canadian Finance Minister devoted \$2,000,000 to the purchase of steel rails; but in the Canadian budget for 1876-7 this item is altogether struck out.

The total of \$2,810,000 proposed to be expended upon the Canadian Pacific line in 1876-7 is made up thus—Telegraph line and construction of roadway, \$110,000; Pembina branch, \$100,000; Georgian Bay branch subsidy, \$1,000,000; Fort William to Selkirk Red River, \$900,000; Mainland British Columbia, \$500,000. We repeat that these figures, although they indicate present depression, are after all not without some encouragement as regards the future, since they show tolerably clearly that the Canadian Pacific Railway is not by any means relegated to the fate and condition of forgotten abortions. Another feature in the Canadian budget which confirms us in this conclusion is a proposed outlay of \$500,000 (in addition to the \$2,810,000 already analysed) upon further Pacific Railway surveys and engineering. Altogether, the Canadian Government proposes to devote in 1876-7 \$4,385,000 to the work of Canadian railway development, the corresponding outlay in 1875-6 having been \$7,504,000. The \$4,385,000 proposed to be expended in 1876-7 is made up thus—Intercolonial Railway completion, \$500,000; extension into Halifax, \$175,000; to deep water at St. John, New Brunswick, \$200,000; Prince Edward Island Railway, \$200,000; Pacific Railway, \$2,810,000; and Pacific Railway survey and engineering, \$500,000. The Canadian Government can scarcely be charged in the presence of figures like these with an abandonment of the important work and duty of Canadian railway construction. Neither is the work of Canadian railway development, through the medium of private enterprise, by any means at a standstill.

At the same time it cannot be denied that Canadian railway construction is sick—almost hopelessly sick—and that Canadian railway extension must be checked in consequence. The Canadians are willing enough to have the benefit of the assistance of British capital in the establishment of additional railway communication upon the soil of the Dominion; but they are clearly very indifferent indeed whether this capital ever receives the remuneration to which it is legitimately entitled. We may point to the Grand Trunk Railway of Canada, the Great Western Railway of Canada, and the Midland Railway of Canada in support of this conclusion; and what is still worse, the Canadian Government has of late positively encouraged the construction of competing lines, thus destroying in one or two instances the last lingering hope of ultimate profit.

MINING IN CARDIGANSHIRE.—Amongst the many mines to which public attention has been lately called on account of the successful development of East Van the Temple Mine may be specially mentioned, and considering the many advantages which are claimed for it by the proprietors, it appears strange that it has not been worked more extensively. Several lodes have been discovered in the settlement, amongst which is the champion lode of the district, formerly known as the Ystymythen, but now called the Van lode. An adit has been commenced on this lode as well as another lode to the south called Pryce's, from the name of the discoverer. The adit level (No. 1) Pryce's lode was commenced a short time since, and lead ore was immediately discovered, and a winze was commenced in the bottom of the level to prove the continuance of ore downwards; at this point the lode is 6 ft. wide, producing about 1 ton of lead per fathom. The end of the adit level only in the mountain 12 fms. produced lead and blende of considerable value. The intention of the Temple Company is to drive a series of adits into the mountain, which rises rapidly from the bed of the River Rheidol to the height of 100 fms., which they anticipate will prove very remunerative, as the lead ore will be obtained without the cost of raising, or the expense of pumping water, and seeing that the mine may be thus developed and worked to a depth from the highest point of the mountain of 100 fms., and to the extent of one mile on the course of the lode, the most favourable results may be expected. Another mine at a great distance from the Temple, possessing the same advantages as those above alluded to, has lately come into the market in 2*l.* shares, which shares are now selling, and much in demand, at 6*l.* per share, 12*l.* per cent. having been paid from the profits of a few months' working. Several other properties in this part of the county are being worked on a small scale privately, and from the development of which no doubt some valuable mines will be discovered.

THE COAL AND METAL TRADES AT BERLIN.—From a just published Report to the Foreign Office on the Trade and Industry of Berlin in 1874, we learn some particulars which are worthy of note respecting the coal and metal trades in the capital of the German Empire. Owing to the extraordinarily high price of English and Westphalian coal Stettin and other places in the Baltic, Mr. Nielsen tells us, were forced to supply themselves to a great degree with Silesian coal. The large increase (which is a noticeable feature in the tables given) of Upper Silesian pit coal imported into Berlin is largely due to the English gas establishment there having drawn its supplies from that quarter. English coals have been almost entirely displaced by that from Westphalia, and as the results of the use of Silesian and other German coal were satisfactory it is thought that consumers will continue to employ them. The production of coal increased, but the consumption decreased, and until the iron trade has resumed its activity the coal trade cannot be expected to improve. The year was not a satisfactory one in the iron and metal trade generally. Owing to the over-production of the year before prices went down, and there was less demand. Scotch goods, however, fetched such high prices that the smelting works endeavoured to employ Silesian iron, but were not successful, as its quality is not uncertain. No iron plates were imported from England, as the German manufacturers were able to keep the market supplied at lower prices. Large quantities of Australian and Peruvian tin were imported, but there was hardly any room for profit in the trade. Lead, of which Spain furnished considerable quantities, was in tolerable demand, and fair prices were obtained. A large quantity of tin-molybdenum was imported from England, and English and Australian copper were also imported.

COAL AND IRON IN THE UNITED STATES.—The Philadelphia and Reading Coal and Iron Company has met with an abundance of good coal in sinking a shaft at Middle Creek. The Philadelphia and Reading Coal and Iron Company has started the Plank River from Merriam Collieries to fill furnace orders, but will ship from their only large sizes of coal. The Philadelphia coal markets have been well supplied with coal, notwithstanding a recent suspension of mining operations. The movement of coal over the Lehigh Valley Railroad last year is returned at 3,277,572 tons, as compared with 4,150,660 tons in 1874. The years commence with Dec. 1, and end with Nov. 30 in each case. The deliveries of coal from the Can-

or it may be, as I have known it, the masonry only keeping the steam in. If men cannot be brought to take such steps as referred to, from a feeling of humanity (to say nothing of self-interest), why should there not be a Board of Trade inquiry, as in the case of railway accidents, and where culpability is proved damages granted to the sufferers? I append a list of explosions, &c., which have taken place during the past three years, as given by Mr. Edward B. Morton, of the Midland Boiler Inspection and Assurance Company, and hope that you, Sir, will consider this grave question not only worthy of type for my letter, but of comment in your columns, which will reach the far and wide among, not only the men of this great manufacturing Empire, but whose lives are often placed in jeopardy.

St. Leonards, Eastleigh, March 20. W. HENRY DARRACQ, Esq.

Year.	No. of explosions.	Killed.	Injured.
1873	78	57	85
1874	76	77	193
1875	68	81	142
Total	222	215	420

March 30.—It would certainly be refreshing once more to write hopefully of the staple trades of the district, but it is impossible, judging from present appearances, to prophesy any movement for the better, at any rate in the immediate future. There was a rumour a few days ago that there was a probability of Cyfartha Works being once more set in motion, but this report requires confirmation, and in some quarters is even contradicted. The strikes of nail-straighteners at Ebbw Vale and Tredegar have now been settled, and several hundreds of men, who by the action of a few had been thrown out of employ, have gone joyfully to work. From all parts of the district the news of reductions in the wages of ironworkers come to hand day after day, and among others it is stated that the ironworkers employed by the Ystalyfera Iron Company have agreed to accept a decrease in wages of $7\frac{1}{2}$ per cent. Not so the men at the College Ironworks, Llandaff, who have refused to allow 10 per cent. being taken off their pay, as they allege they are already underpaid, compared with workmen in a similar position. A strike is imminent. The trade in plates is still fairly active, and it is gratifying to be able to report that during the last week the exports of iron cleared from the ports of the district show an increase over last. The works are chiefly engaged on Swedish, Italian, South American, and a few colonial orders.

Speaking of the Coal Trade, it, too, cannot be said to show many signs of a hopeful nature. The steam coal trade is rather dull, and but a moderate demand for house qualities exists. Patent fuel, as has been the case of late, is a slow sale. The disputes in the anthracite district have not yet been adjusted. At Yonisedwin the colliers are still out on strike, this making 13 weeks they have been idle.

The award of the arbitrators in the wages dispute which had occurred at Dynevor, Duffryn, and Neath Abbey collieries, as well as at the pit belonging to Messrs. Evans and Bevan, has now been given. They declare a reduction of 17½ per cent. on the gross earnings for December. The reduction takes effect from the beginning of the year. The strike at the Seven Sisters Colliery, Neath, has also terminated. On the other hand, as a set off to these, stoppages are expected at the Top Hill Colliery, Neath, and Tyrgwyllyt Colliery, Llansamlet—in the latter instance the men considered themselves underpaid. It is believed that the suspension of work at the former pit will be only temporary. The Tin-plate Trade still remains in an unsatisfactory condition, and shows no improvement on last week.

The dispute at Blaenau Colliery still exists, and hopes of a speedy settlement seem far off at present. Better news comes from the Gilfach Collieries. About 500 persons had been idle for a week, in consequence of the men above ground refusing to work, but now the dispute is at an end, the malcontents consenting to refer the matter to the Sliding Scale Committee.

The Manchester and Milford Railway Bill and the Alexandra (Newport) Docks Bill have been read a second time in the House of Commons, and the latter was ordered to be referred to a select committee. The railway traffic receipts for the week show an increase over those of the preceding week, as well as those in the corresponding week of last year. The Taff Vale Railway Company have been refused *locus standi* in their petition against the Bill before Parliament, which seeks to amalgamate the Llynvi and Ogmore and Cardiff and Gommor Valley Railways.

An important decision has been given in reference to Messrs. Fothergill and Hankey's affairs at the London Bankruptcy Court. The suspension of this firm brought down Mr. Corry with it, who, in the motion before the Court, sought to prove against the estate for the sum of 32,000*l.*, the amount of a composition at 4*s.* in 1*l.* on the large amount of 132,000*l.* in bills on which Mr. Corry was surety for the debtors as acceptor of the same. Some of the creditors had agreed to take debentures of a company formed to carry on the Plymouth and Aberdeen Ironworks, representing 20*s.* in 1*l.* The questions were whether Mr. Corry was entitled to have debentures representing the composition of 4*s.* in 1*l.* paid by him on the amount of the bills, and whether the bill-holders who had received the 4*s.* composition on their bills were entitled to have debentures for the full 20*s.*, or whether the 4*s.* received should be deducted. The Registrar granted the motion of the applicant, with costs, thinking Mr. Corry was entitled to have debentures sufficient to satisfy the 32,000*l.* paid by him. Those creditors who had already had the 4*s.* of course could only have debentures representing the remaining 16*s.*

March 30.—There has of late been a steady output of lead ore at the mines in Derbyshire, but there has not been any new ground broken for some time. A full average tonnage of ironstone is also being raised, but to keep the furnaces full going a large quantity has to be imported from Northamptonshire. The demand for pig, however, is very fair when the general state of the iron trade is considered. Foundry material is in tolerably good request, and the malleable works at Dronfield have been well employed. At the Bessemer Works at the same place the men have submitted to a reduction of wages to the extent of 10 per cent., and have wisely continued at work. The reduction of the miners' wages at the collieries in North Derbyshire is causing some excitement. At the Clay Cross pits the men have refused to accept the 15 per cent. reduction, and are now out on strike against it. The company, however, is not likely to give way, although the cost of keeping the pit idle is something considerable. From Clay Cross it may be said that about 6000 tons of coal are sent to London weekly, but so keen has been the competition of late between the sea-borne and inland coal that prices have been the reverse of remunerative. But the workmen cannot recognise such a fact, for whilst their wages are considerably higher than they were in 1871, yet the price of coal at the pits is now lower than it was in that year.

No change has taken place in the Sheffield trades, the heavy plate-mills being the best employed branch there is, extensive orders being in hand for the Italian as well as other Governments. Ship and boiler plates are in tolerably fair request, and the Bessemer works are now favourably off for business, especially in rails. The works in other parts of South Yorkshire are also, as a rule, doing very well. At the Railway Foundry, Barnsley, an increasing business is being done in the patent metallic pistons of Bowers and Quater, a most valuable invention, and an extension of the patent for six years has just been granted by the Committee of the Privy Council. The demand for house coal has fallen off considerably, and at few of the collieries are the men working more than from three to four days per week. Prices have come down very much, and have a decided tendency in that direction, so that colliery owners complain that they are working their pits without profit. At Wharfedale Wood-moor Colliery the men have been out for some time with respect to wages. On Monday the men at the Swaith and Edmund's Main Collieries struck work, refusing to accept the award of arbitrators previously agreed upon. The men, with one of the leaders, said the award, which related to the price to be paid for getting coal by wedging instead of gunpowder, was unfair towards them, and wished to have the matter tried over again. At many places the 15 per cent. reduction notice will expire this week, and there does not appear to be any disposition to accept it on the part of the workmen. The

In the first place our experience shows that people are anxious to get boilers to cheap, and firms of standing, desirous of putting in good material and workmanship, at a fair and remunerative price, are passed by for inferior makers. If it is the duty of a buyer to order, and see that he receives, a first class boiler, but he has no right to expect it unless he agrees to pay accordingly. Then the boiler, when put under steam, should be placed in the hands of an intelligent engineer or a steamer who thoroughly understands his work. How often is this neglected, and men of the lowest grade, at low wages, placed in charge—the only thing required being a certificate from a local authority, which is a mere formality. A man with coal in the preceding which leads to great waste of fuel, and is, therefore, a mistaken economy. But it is more grave, steam pressure, water supply, and water deposit become of such men dimly understood and, possibly, neglected points leading to the explosion of even the best of boilers. The owner is responsible, therefore, in this case. Thirdly, it is the duty of every steam user—unless he be himself an engineer, or has men about him with some practical knowledge of steam machinery—to become a member of some association, who serve the double purpose of inspecting a new or second hand boiler when bought, as well as of giving instruction in the use, care, and of insurance in case of accident. This protects in every way, and in protecting him, also the lives of his workpeople, and the public generally.

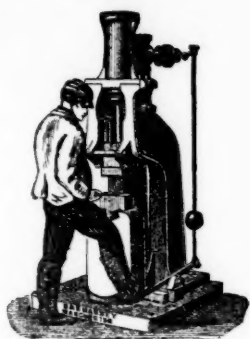
The questions, therefore, of responsibility and prevention are easily answered, and the lamentable explosion of yesterday points the moral here—plates 1-16 in this

tion to the Secretary, at the office of the company, and at the office in
Barnstable.

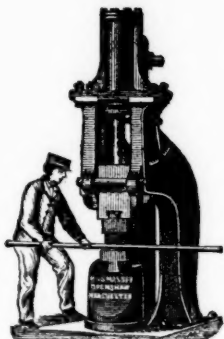
B. & S. MASSEY, OPENSHAW, MANCHESTER.

PRIZE MEDALS Awarded:—Paris, 1867; Havre, 1868; Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873; Scientific Industry Society, 1874; Leeds, 1875; Paris, 1875.

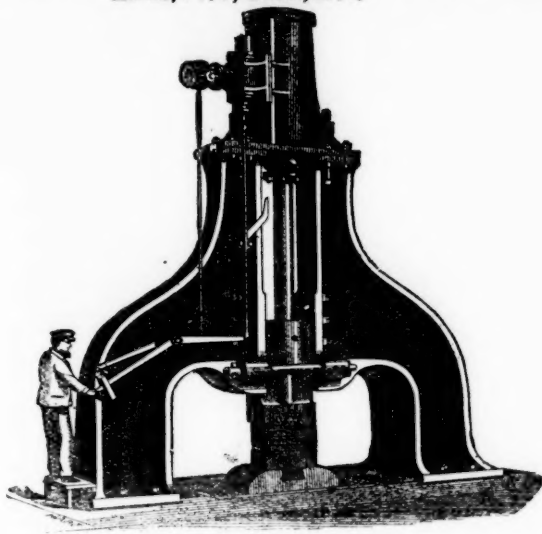
Patentees and Makers of Double and Single-acting STEAM HAMMERS of all sizes, from $\frac{1}{2}$ cwt. to 20 tons, with self-acting or hand motions, in either case giving a perfectly DEAD BLOW, while the former may be worked by hand when desired. Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers, working up to 500 blows per minute, in some cases being worked by the Foot of the Smith, and not requiring any separate Driver.



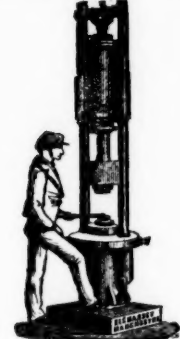
Small Hammer with Foot Motion.



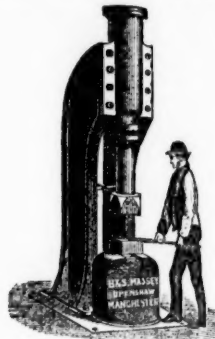
General Smithy Hammer.



Steam Hammer for Heavy Forging.



Special Steam Stamp.



General Smithy Hammer.

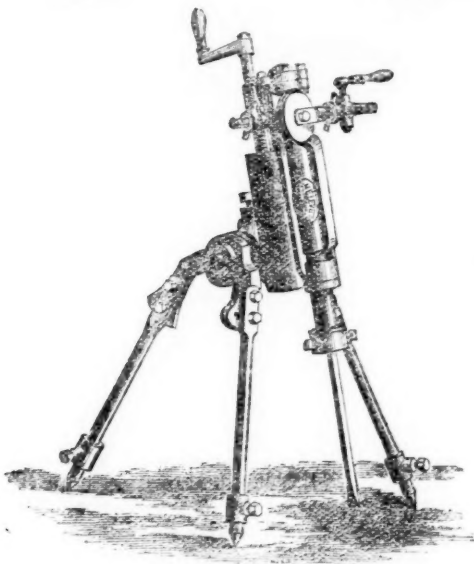
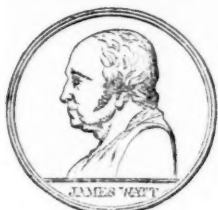
From 60 to 100 Steam Hammers and Steam Stamps may usually be seen in construction at the Works.

SPECIAL STEAM STAMPS, for Forging, Stamping, Punching, Bolt-making, &c.
STEAM HAMMERS for Engineers, Machinists, Shipbuilders, Steel Tilters, Millwrights, Copper-smiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c.; also for Use in Repairing Smithies of Mills and Works of all kinds for straightening Bars, bending Cranks, breaking Pig-iron, &c.

THE LEVET ROCK DRILL,

UNDOUBTEDLY

The Simplest and Most Efficient in the World.



THIS DRILL WILL BORE THE HARDEST GRANITE with great rapidity, without getting out of order.

It is the CHEAPEST and MOST PROFITABLE MACHINE for SINKING, MINING, and QUARRYING. It is preferred and adopted (after trials) by owners and managers of mines both in England and abroad.

For particulars, and Prices of Rock Drills, Air Compressors, Coal Cutters, Steam Pumps, and all other Mining Machinery, apply to—

CHAS. HARWOOD AND CO.,
ST. STEPHEN'S CHAMBERS,
TELEGRAPH STREET, MOORGATE STREET, LONDON, E.C.

PROF. ABEL'S ELECTRIC FUSES.

These FUSES are used for BLASTING and SUB-MARINE PURPOSES; also for TIME GUNS. They are fired by ELECTRIC BATTERY or MAGNETO-ELECTRIC MACHINE.

SOLE MANUFACTURERS:

W. LADD AND CO.,
11 & 12, BEAK STREET, REGENT STREET,
LONDON.

THE IRON AND COAL TRADES' REVIEW

ROYAL EXCHANGE, MIDDLESBOROUGH.
The IRON AND COAL TRADES' REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general. Offices of the Review: London: 7, Westminster Chambers, S.W.; Middlesborough on Tees: Royal Exchange; Newcastle-on-Tyne: 50, Grey-street.

MINING PROSPECTUSES AND ANNOUNCEMENTS OF PUBLIC COMPANIES should be inserted in the BARNSTAPLE TIMES published every Tuesday, and in the DEVON POST, published every Saturday, as these papers circulate largely throughout Devon and Cornwall, where many thousands of investors reside. Legal and Public Companies' advertisements, 6d. a line each insertion; Trade and Auctions, 4d. a line; Wanted, &c., 2d. words, 1s. Published by J. B. JONES, Bouthport-street, Barnstaple, Devon, to whom all orders by post or telegraph should be sent.

BARROWS & STEWART, ENGINEERS, BANBURY,

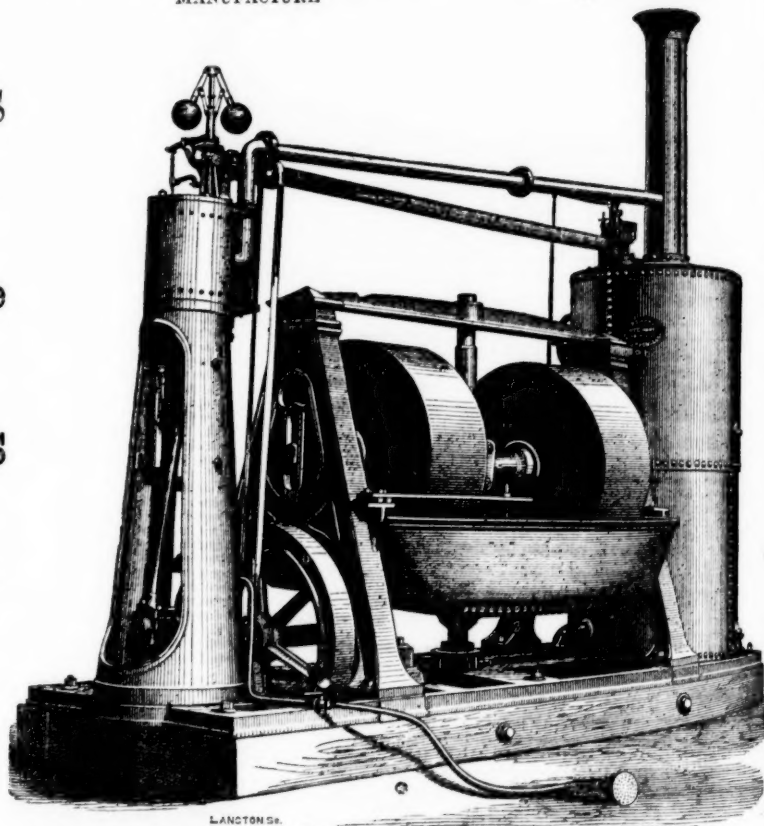
MANUFACTURE

PORTABLE Steam Engines

With Gear for
Winding,
Pumping, and Ore
crushing.

ALSO,

COMBINED MILLS
and ENGINES,
with or without
BOILERS,
for Grinding
Cinders, Sand,
Mortar, &c.



LANCONE & CO.

THE "CRANSTON" ROCK DRILL

SUITABLE FOR

QUARRYING and OPEN CUTTING, SINKING SHAFTS, SUBMARINE BLASTING, TUNNELLING, DRIVING ADITS, &c., is the MOST SIMPLE and ECONOMICAL DRILL now in use.

The "CRANSTON" Drill is extensively used in the Hematite Iron, Lead Mining, and Colliery Districts of Northumberland, Cumberland, and Durham; is also in use in Sweden, Belgium, Austria, India, and various other places.

STEAM BOILERS; AIR COMPRESSORS, worked by Hydraulic or Steam-power; PUMPING, and all other MINING MACHINERY supplied.

STEEL, SPECIALLY ADAPTED FOR MINING PURPOSES, SUPPLIED AT CURRENT PRICES.

For Prices, Estimates, and other Particulars, apply to—

**J. G. CRANSTON, ENGINEER, 22, GREY STREET,
NEWCASTLE-ON-TYNE.**

MANCHESTER WIRE WORKS.

NEAR VICTORIA STATION, MANCHESTER.

(ESTABLISHED 1790).

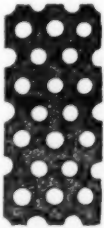
JOHN STANIAR AND CO.,

Manufacturers by STEAM POWER of all kinds of Wire Web, EXTRA TREBLE STRONG for
LEAD AND COPPER MINES.

Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.

EXTRA STRONG PERFORATED ZINC AND COPPER RIDDLES AND SIEVES.

Shipping Orders Executed with the Greatest Dispatch.



NOBEL'S DYNAMITE

Is the MOST ECONOMICAL and POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks, its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

As a SUBSTITUTE FOR GUNPOWDER its advantages are the GREAT SAVING OF LABOUR, rapidity and INCREASE OF WORK done, FEWER and smaller BORE-HOLES required, greater depth blasted, safety in use NO DANGER FROM TAMPING, absence of smoke, unaffected by damp, &c.

For information, apply to the—

BRITISH DYNAMITE COMPANY (LIMITED), GLASGOW;

OR AT THE

London Export Office, 85, GRACECHURCH STREET, LONDON, E.C.

HOME TRADE DISTRICT AGENCIES:—

HENRY KITCHIN and Co., 14, Tangier-street, Whitehaven.
F. H. EDWARDS, Forth House, Newcastle.
ROBERT MORRISON, Zetland Buildings, Middlesborough.
ALBERT RICKETTS, Dean Lane, Bedminster, Bristol.
LEIGH AND SULLIVAN, 15, Old Corn Exchange, Manchester.
GEORGE ROBERTS, East End Villa, Lower Barton-street, Gloucester.
J. H. BEAN and Co., 6, Albion-street, Leeds.
C. H. WILLIAMS, Albert street, Camberne.
CROSS BROTHERS, 21, Working-street, Cardiff.
G. WILLIAMS and SON, Baker-street, Aberystwith.
WEBB and Co., Llanberis, Caernarvon.

W. LEAN, Claremont House, Holywell.
JOHNSON and Co., Tower street, Dudley.
JOHN AULT, Eastwood, Nottingham.
B. D. VIGGARS, Knutton, Newcastle-under-Lyme.
TODD and ELLIOT, Market-place, Douglas, Isle of Man.
ARTHUR TUPMAN, 19, India street, Edinburgh.
JOHN DONALD, 21, Belmont street, Aberdeen.
WILLIAM WATSON, Main street, Coatbridge.
ROBERT HAMILTON, Douglas-street, Dunfermline.
R. and J. CARSON, 8 and 10, Corn Market, Belfast.
JAMES PIRE, 179, Strand Road, Merriem, Dublin.
CHARLES H. ROBERTS, Mount Rivers, Carrigaline, Cork.
CLOHERTY and SEMPLE, Merchants' road, Galway.

LITHOFRACTEUR.

THE BEST EXPLOSIVE KNOWN FOR EVERY KIND OF QUARRYING, MINING, TUNNELLING, AND SUBAQUEOUS OPERATIONS.

UNRIVALLED FOR STRENGTH, SAFETY, AND FREEDOM FROM GASES.

EXPORT ORDERS DELIVERED FREE ON BOARD IN THE THAMES. PAMPHLETS ON APPLICATION.

Responsible Agents for the Country Districts can apply to—

KREBS BROTHERS AND CO., Sole Manufacturers and Patentees,
22, BASINGHALL STREET, LONDON, E.C.

THE DARLINGTON ROCK BORER.

No VALVE—BLOW obtained by the movement of the PISTON.
IN USE IN FRANCE, GERMANY, SPAIN, AND ELSEWHERE.

Rock Borers, Air Compressors, and Electric Blasting Apparatus.
Sole Agents and Manufacturers for France.—The Blanz
Mining Company,

WHERE BORERS MAY BE SEEN IN OPERATION.

For letter of introduction, particulars, &c. apply to—

JOHN DARLINGTON,

2, COLEMAN STREET BUILDINGS, MOORGATE STREET, LONDON.

MINING MACHINERY AND TOOLS. THE TUCKINGMILL FOUNDRY COMPANY,

85, GRACECHURCH STREET, LONDON, E.C. WORKS: TUCKINGMILL.

MANUFACTURERS of every description of MINING MACHINERY,
TOOLS, MILLWORK, PUMPING, WINDING, & STAMPING ENGINES.

SOLE MAKERS OF

BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.

PRICE LISTS CAN BE HAD ON APPLICATION, AND

SPECIAL QUOTATIONS WILL BE GIVEN UPON INDENTS AND SPECIFICATIONS.

TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS.

TUCKINGMILL, CORNWALL, AND 85, GRACECHURCH STREET, LONDON, E.C.

GRIFFIN'S GAS FURNACES,

FOR

OPERATIONS

AT

WHITE HEAT

IN

CRUCIBLES

OR

MUFFLES

ARE THE

SIMPLEST, CHEAPEST, AND MOST POWERFUL.

They consume only 20 feet of gas per hour.
They melt cast iron in about 30 minutes.
They have no expensive breakable grates.
They are simple, cheap, and durable.

Price of the Crucible Furnace, 21s.
Price of the Muffle Furnace, 31s. 6d.
Price of the Combined Furnaces, 45s.
Size of the Muffle, 6½ by 3 inches.

DESCRIPTIVE PRICE LISTS of above, and of LARGER SIZES, capable of melting 4 lbs. of Iron in one hour, or of making a Muffle 8 by 4 inches White Hot, on application to

JOHN J. GRIFFIN & SONS, 22, GARRICK STREET, LONDON.

LOCOMOTIVE TANK ENGINES

FOR MAIN LINE TRAFFIC, SHORT LINES COLLIERIES.
CONTRACTORS, IRONWORKS, MANUFACTURERS, &c., from a superior specification, equal to their first-class Railway Engines, and special adapted to sharp curves and heavy gradients, may always be had at a short notice from—

MESSRS. BLACK, HAWTHORN, AND CO.,

LOCOMOTIVE, MARINE, AND STATIONARY ENGINE WORKS,
GATESHEAD ON TYNE.

BICKFORD'S PATENT

FOR CONVEYING
CHARGE IN



SAFETY FUSE,

FIRE TO THE
BLASTING ROCKS, &c.

Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXPOSITION," held in Paris, in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Atlanta, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordoba, South America, 1872.



BICKFORD, SMITH AND CO.,
of TUCKINGMILL, CORNWALL; ADELPHI
BANK CHAMBERS, SOUTH JOHN STREET, LIVER-
POOL; and 85, GRACECHURCH STREET, LONDON,
E.C., MANUFACTURERS AND ORIGINAL
PATENTERS OF SAFETY-FUSE, having been in-
formed that the name of their firm has been attached to
fuse not of their manufacture, beg to call the attention of
the trade and public to the following announcement:—
EVERY COIL of FUSE MANUFACTURED by them has TWO SEPARATE
THREADS PASSING THROUGH the COLUMN of GUNPOWDER, and BICK-
FORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as
THEIR TRADE MARK.

BENNETTS' SAFETY FUSE WORKS,

ROSKEAR, CAMBORNE, CORNWALL.

BLASTING FUSE FOR MINING AND ENGINEERING PURPOSES.

Suitable for wet or dry ground, and effective in tropical or Polar climates.

W. BENNETTS, having had many years experience as chief engineer with
Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of
his own manufacture, of best quality, and at moderate prices.

Price Lists and Sample Cards may be had on application at the above address.

LONDON OFFICE—H. HUGHES, Esq., 85, GRACECHURCH STREET.

SEND FOR LISTS, SHOWING EXTRA LARGE DISCOUNTS
FOR CASH.

HOWARD RYLAND AND CO.,

MANUFACTURERS,

105 AND 106, NEWHALL STREET, BIRMINGHAM,
CLOTH AND MANILLA CARTRIDGE

DIRECTION LABELS. SELF INKING ENDORSING STAMPS.

DOOR AND WINDOW PLATES of Brass, Zinc, and of Plate Glass.

Letter Copying Presses, Electrotyping Presses, Embossing Presses, Stamps for
Election Purposes, Dating Stamps, Key and Umbrella Labels, Wine Merchants
and Chemists' Wax Seals, Sealing and Bottling Wax, Glue, Post Boxes for Jewellers
and others, Brass Checks for large Works, Concert Halls, Hotel Keepers, &c.,
Brass Labels for Patentees, Gunned Tickets for Drapers, Gunned Labels, &c.

Printing, Letter Cutting, Die Sinking, Engraving, Wood Engraving, Stereo-
typing, Bookbinding, executed at exceedingly low prices.

Birmingham Goods of every description supplied at low prices for cash only.

Endorsing Inks supplied, Old Stamps repaired, Door and Window Plates re-
engraved, and made as new.

SPECIAL NOTICE.

H. R. and Co. are now supplying DIRECTION LABELS, subject to 30 percent.
dis. off List Prices.

ENDORSING STAMPS, No. 3, at 3s. 9d. each, and ENGRAVING at 1s. 3d.
per dozen letters; usual price, 7s. 6d.; and ENGRAVING 2s. 6d. per dozen
letters.

FLEXIBLE PRINTING STAMPS at less than half the List Price. Key and
Umbrella Labels at 6d. each, engraved.

DOOR AND WINDOW PLATES, at very low prices.

AGENTS WANTED.

JOHN AND EDWIN WRIGHT,

PATENTERS.

(ESTABLISHED 1770.)

MANUFACTURERS OF EVERY DESCRIPTION OF
IMPROVED

PATENT FLAT AND ROUND WIRE ROPES
from the very best quality of charcoal iron and steel wire.

PATENT FLAT AND ROUND HEMP ROPES,
SHIPS' RIGGING, SIGNAL AND FENCING STRAND, LIGHTNING CON-
DUCTORS, STEAM PLOUGH ROPES (made from Wedder and Horsfall's
patent steel wire), HEMP, FLAX, ENGINE YARN, COTTON WASTE
TARPAULING, OIL SHEETS, BRATICE CLOTHS, &c.

UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.

UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.

CITY OFFICE No. 5, LEA: ENHALL STREET, LONDON, E.

MAPS OF THE MINES, AND OF UTAH TERRITORY.

FROISETH'S NEW AND REVISED MAP FOR 1875.—
Size 40 by 56 inches, scale 8 miles to the inch. Handsomely engraved, col-
oured in counties, showing the Towns, Settlements, Rivers, Lakes, Railroads,
Mining Districts, &c., throughout the Territory, and all the Government Surveys
to date. Mounted on cloth, £2; half-mounted, £1 12s.; pocket form, £1.

Also, GENERAL MINING MAP OF UTAH, showing twenty-eight of the
principal Mining Districts adjacent to Salt Lake City, and location of the most pro-
minent mines. Price, pocket form, 6s.

Also, NEW MAP OF LITTLE AND BIG COTTONWOOD MINING DIS-
TRICTS, showing the location of over Four Hundred Mines and Tunnel Sites, to-
gether with the Mines Surveyed for United States Patent. Price, sheets, 6s.; poe-
ket form, 8s.

For sale, and supplied by—
TRUBNER and Co., 57 and 59, Ludgate Hill, London; or
B. A. M. FROISETH, Salt Lake City, Utah, U.S.

Now ready, price 3s., by post 3s. 3d., Sixth Edition; Twentieth Thousand Copies
much improved, and enlarged to nearly 300 pages.

HOPTON'S CONVERSATIONS ON MINES, between Father and
Son. The additions to the work are near 80 pages of useful information,
principally questions and answers, with a view to assist applicants intending to
pass an examination as mine managers, together with tables, rules of measure-
ment, and other information on the moving and propelling power of ventilation, a
subject which has caused so much controversy.

The following few testimonials, out of hundreds in Mr. Hopton's possession
speak to the value of the work:—

"The book cannot fail to be well received by all connected with collieries."—
Mining Journal.

"Its contents are really valuable to the miners of this country."—Miners Con-
ference.

"Such a work, well understood by miners, would do more to prevent collier
accidents than an army of inspectors."—Colliery Guardian.

London: MINING JOURNAL Office, 26, Fleet-street; and to be had of all book-
sellers.

Second Edition. Just published, price 8s. 6d.

A NEW GUIDE TO THE IRON TRADE
OR, MILL-MANAGERS' AND STOCK-TAKERS' ASSISTANT:
Comprising a Series of New and Comprehensive Tables, practically arranged to
show at one view the Weight of Iron required to produce Boiler plates, Sheet-iron,
and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimen-
sions. To which is added a variety of Tables for the convenience of Merchants
including a Russian Table. By JAMES ROSE,

OPINIONS OF THE PRESS.

"The Tables are plainly laid down, and the information desired can be instantly
easily obtained."—Mining Journal.

"900 copies have been ordered in Wigan alone, and this is but a little of those to
whom the book should commend itself."—Wigan Examiner.

"The work is replete on the subject of underground management."—M. BANX
Colliery Proprietor.

"I have works priced £4 that do not contain t'seame information."—W. W.
KENNICK, Colliery Viewer.

"The work is the result of much labour, and is decidedly valuable."—Engineer.

"By its use many hours time spent in tedious calculations will be saved and
many very serious errors avoided."—Wolverhampton Chronicle.

To be had on application at the MINING JOURNAL Office, 26 Fleet-street London

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.				
Shares.	Mines.	Divid.	Last Pr.	Close Pr.
1000	Alderley Edge, c, Cheshire*	10 00	—	—
11000	Balmynheer, c, Wenden (4000 to 15)	1 00	—	—
30000	Bampfyde, c, St. Just*	116 80	30	25 26
4000	Brookwood, c, Buckfastleigh	1 16 00	—	1 13 1/2
3348	Cargill, s, Newlyn	5 18 00	1 1/2	1 1/2
6400	Cashwell, c, Cumberland*	2 10 00	—	—
1000	Carr Brea, c, t, Illogan†	35 00	32	29 31
8000	Cath. & Jane, t, Penrynendendraeth	12 19 00	—	—
3450	Cook's Kitchen, t, Illogan†	1 00	—	—
10340	Devon Gt. Consols, c, Tavistock†	1 00	—	—
4296	Dolcoath, c, t, Camborne	10 14 00	37	44 1/2
6000	Drake Wall, t, c, Calstock	6 00	1 1/2	1 1/2
15000	Duchess of Westminster, t, Holywell	1 00	—	—
10 000	East Barmouth, c, t, Sancerre*	1 00	—	—
9144	East Caradon, c, St. Cleer†	2 14 00	2 1/2	1 1/2
800	East Darren, t, Cardiganshire	32 00	30	28 30
6100	East Pool, t, c, Illogan†	18 14 00	18 1/2	18 1/2
19006	East Wheel Lovell, t, c, Illogan†	6 19 00	4	3 8
2400	Foxdale, t, c, t, Man*	25 00	—	—
40 000	Glasgow Carr, c, (30,000 £1 p. 10,000 15s. p.)	1 1/2	1 1/2	1 1/2
15 000	Great Laxey, t, c, t, Man*	4 00	10	17 1/2 18 1/2
25 000	Great West Van, t, Cardigan	2 00	—	—
6000	Great Wulfr, t, c, Helston†	41 26 00	2	1 1/2
6100	Green Hurl, t, Durham*	0 6 00	—	—
20000	Grognon, t, Cardigan*	2 00	—	—
9830	Gunnislake (Clitters), t, c	8 00	8	8 1/2 8 1/2
1024	Herdfoot, t, c, Calstock† (41 sh.)	8 00	—	—
18000	Illogan, t, c, Calstock† (41 sh.)	2 50	1	3 1
25000	Kilbuck, t, Tipperary	1 00	—	—
6120	Lisburn, t, Cardiganshire	18 16 00	55	50 55
6120	Lovell, t, Wenden	0 10 00	—	—
9000	Marke Valley, c, Cardigan*	5 06	2 1/2	2 1/2 2 1/2
10000	Meinour Valley, t, Cardigan*	3 06	3	2 3
9000	Miners Mining Co., t, Wrexham†	8 00	12	12 13
20000	Mining Co. of Ireland, t, c, t	7 06	—	—
612	North Bury, c, Chacewater	2 10 00	—	—
12000	North Levan, t, c, St. Just†	12 20 00	—	—
27555	Old Treburr, s, ordinary shares	1 00	—	—
2888	Old Treburr, s, t, ordinary shares	0 10 00	—	—
9580	Pedra-an-drea, t, Redruth†	9 17 00	—	—
8000	Penhalis, t, St. Agnes	3 00	2	1 1/2
45793	Penrith, t, c, t, Wrennap	2 00	—	—
8000	Phoenix, t, c, t, Wrennap	4 13 00	—	—
15000	Prince Patrick, t, c, Holywell	1 00	—	—
1120	Providence, t, c, t, Wrennap	15 17 00	1	2 1/2
12000	Roman Graves, t, Salop*	7 10 00	14 1/2	13 1/2 14
612	South Caradon, c, St. Cleer†	1 50	140	130 140
8000	South Carn Brea, c, t, Illogan†	2 17 00	1	1 1/2 1 1/2
6123	South Condurrow, t, c, Camborne†	6 06	—	—
10 000	So. Fr. Patrick, s, t, (8000 sh. issued)	1 00	—	—
12000	Tankerville, t, Salop	6 00	—	—
6000	Tincroft, c, t, Pool, Illogan†	18 16 00	18 1/2	18 1/2
4000	Trumpet Consols, t, Weston†	9 00	—	—
15000	Van, t, Llanidloes†	4 50	40	39 41
8000	W. Chiverton, t, Perranabuloe†	12 10 00	20	19 20
1781	West Poldice, t, St. Day	10 00	—	—
612	West Tals, c, Redruth†	95 10 00	72	67 1/2 70
2048	West Wheel Frances, t, Illogan†	27 39 00	9	7 1/2
612	Wheel Basset, c, Illogan†	9 28 00	12	8 10
2048	Wheel Jane, t, c, t, Illogan†	2 13 10 00	3	2 1/2 3
4296	Wheel Kitty, t, St. Agnes	5 40 00	—	—
80	Wheel Wines, t, St. Agnes	85 00	—	—
8000	Whel Frusill, t, Redruth	2 00	—	—
35000	Wicklow, c, s, t, Wicklow	2 10 00	—	—
10000	Wye Valley, t, Montgomery*	3 00	7	6 7

FOREIGN DIVIDEND MINES.				
Shares.	Mines.	Divid.	Last Pr.	Close Pr.
35500	Alamillos, t, Spain†	2 00	—	—
30000	Almaden and Tinto Consols, s†	1 00	—	—
20000	Australian, c, South Australia†	7 78	2 1/2	1 1/2 2 1/2
10000	Battle Mountain, c, (6240 part pd.)	5 00	—	—
10000	Birdseye Creek, c, California†	4 00	—	—
6000	Bensberg, t, Germany†	10 00	—	—
12500	Burns, t, c, So. Australia†	10 00	—	—
20000	Cape Copper Mining, t, So. Africa†	7 00	—	—
4000	Cedar Creek, c, California†	5 00	—	—
30000	Central American Association†	0 18 00	—	—
15000	Chicago, s, Utah†	10 00	—	—
21000	Colorado Terrible, t, Colorado†	6 00	—	—
10000	Copago, c, Chili† (20 shares)	15 10 00	—	—
100000	Don Pedro North of the Key†	0 18 00	—	—
2500	Eberhardt and Aurora, s, Nevada†	10 00	—	—
6000	Emma, t, c, Utah†	20 00	—	—
7000	English and Australian, c, St. Aust.	2 10 00	—	—
15000	Ferguson, c, California†	2 00	—	—
30000	Flagstaff, s, Utah†	10 00	—	—
95000	Fortuna, t, Spain†	2 00	—	—
8000	Gold Run, t, c, Utah†	1 00	—	—
8000	Kapunda Mining Co. Australia†	1 30	—	—
20000	La Chaux, t, c, Utah†	3 00	—	—
15000	Linares, t, Spain†	5 00	—	—
80000	London and California, s†	2 00	—	—
7837	Lusitania, Portugal† (45 shares)	3 10 00	—	—
5000	Mammoth Copperopolis of Utah, c, t	10 00	—	—
6000	Mountain Chief, t, Utah†	10 00	—	—
15000	Prussian Mining & Ironworks, c, t	30 00	—	—
10000	Pontigbaud, t, France†	20 00	—	—
10 000	Port Phillip, c, Clunes†	1 00	—	—
61000	Richmond Consols, t, Nevada†	5 00	—	—
12 000	Scottish Australian Mining Co., t	1 00	—	—
80000	Scottish Austral. Mining Co., New	0 50	—	—
114000	Sierra Butte, c, California†	2 00	—	—
6 000	South Aurora, s, Nevada†	6 00	—	—
223500	St. John del Rey† (45 stock and multiples dealt in)	370 190	—	—
15 000	Sweetland Creek, c, California†	4 00	—	—
20000	Tollina, s, t, (8000 sh. are £5 f. pd.)	4 10 00	—	—
10000	Western Andes, s, t, New Granada†	5 00	—	—

NON-DIVIDEND FOREIGN MINES.				
Shares.	Mines.	Divid.	Last Pr.	Close Pr.
20000	Anglo-Australian, c, Victoria*	2 10 00	—	—
5000	Anguilla, t, c, Argentina (4000 issued)	5 00	—	—
12000	Argentine, t, c, Argentina	5 00	—	—
10000	Australian Central, s† (also 6000 deferred shares)	1 00	—	—
30 000	Bellavista, s, Peru† (40 shares)	10 00	—	—
2000	Blue Tent, t, c, California	5 00	—	—
5000	Braganza, s, Brazil†	0 15 00	—	—
12000	Camp Floyd, t, Utah†	10 00	—	—
30000	Cesena Sulphur Company, Romanga, Italy†	10 00	—	—
60152	Chontales, c, t, Nicaragua† (and 12,542 of £1 ls.)	2 00	—	—
8000	Clifton, t, c, Argentina	5 00	—	—
15 000	Condes of Chili, t	5 00	—	—
10000	Crescent, c, Plumas County, California†	10 00	—	—
5000	Excelsior Hydraulic Gold Washing Co., California†	6 00	—	—
10 000	Exchequer, s, c, California†	1 00	—	—
50000	Frontino and Bolivia, c, New Granada†	2 00	—	—
4000	Holcombe Valley, c, California	1 00	—	—
6000	Hornachos, s, t, (40 shares) Spain	10 00	—	—
10 000	Imperial, c, California†	5 00	—	—
10 000	Javal, c, Nicaragua†	2 00	—	—
10000	Lancaster, t, c, Viscaya, Spain (42 shares)	2 15 00	—	—
75000	Malabar, c, Colombia† (65000 issued)	1 00	—	—
4000	Malpaso, c, Colombia† (10000 pref. shares, fully paid)	1 00	—	—
10000	Meuzenberg, c, Honnef, Germany†	5 00	—	—
6000	Monte Loretto, c, t, Italy†	5 00	—	—
95000	New Quebrada, c, Venezuela†	5 00	—	—
90000	New Rosario, t, Mexico†	1 00	—	—
20000	New Zealand Kapanga, c, Coromandel†	5 00	—	—
8000	Oregon, c, Oregon, U.S. (preference shares)	5 00	—	—
90000	Panuelico, c, Chili† (480000 debentures)	4 00	—	—
8 000	Pastorale United, c, Italy†	4 00	—	—
5 000	Rio, c, Colombia† (40000 issued)	1 00	—	—
22 000	Rio Tinto, c, t, Huéval, Spain	10 00	—	—
1 000	Rosa Grande, c, Brazil† (41 shares)	0 19 00	—	—
3 000	Russia, c, Orenburg and Uta†	10 00	—	—
25000	San Pedro, c, Chili†	2 00	—	—
40000	Santa Barbara, c, Brazil†	2 00	—	—
10000	Silver Plume, c, Colorado†	0 98	—	—
17500	Snodgrass, t, Colorado†	1 00	—	—
30000	Tecoma, s, Utah†	2 00	—	—
30000	Thorhill Reef, s, Australia†	1 00	—	—
4174	Union Mexican, s, Mexico†	28 15 3	—	—
14000	Utah, s, t, Utah†	5 00	—	—
25000	Victoria (London), c, Australia (25,000 sh. 15s. pd.)	1 00	—	—
75000	Yorke Peninsula, c, South Australia	1 00	—	—
40000	Yorke Peninsula, c, South Australia Preference	1 00	—	—

Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.				
Shares.	Mines.	Divid.	Last Pr.	Close Pr.
Argentine, 1868, 6 per cent.	—	—	—	—
Bolivia, 6 per cent.	—	—	—	—
Brazilian, 1868, 5 per cent.	—	—	—	—
Chilian, 1868, 7 per cent.	—	—	—	—
City of Providence, 5 p. coupon bonds	—	—	—	—
Egyptian, 1862, 7 per cent.	—	—	—	—
Do., 1868, 7 per cent.	—	—	—	—
Do., 1 per cent., V.M.L.	—	—	—	—
Do., 5 per cent., V.M.L.	—	—	—	—
Do., 1 per cent., K.M.L.	—	—	—	—
Foreign and Col. Gov. Trust, 5 p. cent.	—	—	—	—
Do., 5 per cent., 2d issue	—	—	—	—
Do., 6 per cent., 3d issue	—	—	—	—
Do., 1872, 4th issue	—	—	—	—
Do., 1875, 5th issue	—	—	—	—
Peruvian, 1870, 6 per cent.	—	—	—	—
Do., 1872, 6 per cent.	—	—	—	—
Russian, 5 1/2 per cent. L. Mort.	—	—	—	—
Spanish, Quicksilver Mort., 5 p. cent.	—	—	—	—
United States Mort., 6 per cent.	—	—	—	—

NON-DIVIDEND MINES.

10000	Aberdunant, t, Llanidloes*	1 00	—	1 1/2	1 1/2	1 1/2
10000	Aberystwyth, s, t, Cardigan	5 00	—	—	—	—
18000	Ambrase Lake, t, c, Liskeard	1 18 00	—	—	—	—
12000	Asheton, t, Carnarvonshire†	5 00	—	1 1/2	1 1/2	1 1/2
50000	Ballycummisk, c, Schull	2 00	—	—	—	—
12000	Bedford United, c, Tavistock	1 17 60	—	1 1/2	1 1/2	1 1/2
28000	Belstone, c, t, Devon (7,000 fully pd.)	1 00	—	3	2 1/2	3
15000	Elven United, s, t, Cardigan	1 00	—	1 1/2	1 1/2	1 1/2
15000	Blue Hills, t, c, St. Agnes	2 00	—	—	—	—
2000	Bowden Hill, s, t, Cardigan	1 00	—	—	—	—
2000	Brynden Hill, t, c, St. Agnes	1 00	—	—	—	—
30000	Burrow & Butson, t, c, St. Agnes	1 00	—	—	—	—
4793	Bwadrain, s, t, Cardigan*	4 00	—	—	—	—
4127	Bwiche Consols, s, t, Cardigan†	5 00	—	—	—	—
30000	Calbeck Fells, t, Cumberland*	2 00	—	—	—	—
5584	Carn Camborne, t, c, Camborne	5 36	—	1 1/2	1 1/2	1 1/2
10000	Cathedral, t, c, Gwennap*	1 10 00	—	1 1/2	1 1/2	1 1/2
20000	Central Foxdale, t, Isle of Man*(£2 sh.)	1 00	—	—	—	—
10000	Central Van, t, c, Llanidloes	5 00	—	—	—	—
24000	Corn Grange, s, t, Cardiganshire	1 00	—	—	—	—
20000	Cwm Dwyfor, c, s, t, Carnarvonshire...	1 00	—	—	—	—
15000	Cwm Nant Iddu, t, c, Montgomery	1 00	—	—	—	—
10000	Denbighshire Consolidated, t	3 00	—	3	2 1/2	3
658	Ding Dong, t, c, Gulval	10 14 60	—	—	—	—
10000	Dubby Syke, t, Durham	0 90	—	1 1/2	1 1/2	1 1/2
10000	Duchy Great Consols, c, Calstock	5 00	—	—	—	—
812	East Basset, c, Redruth†	75 15 00	—	2 1/2	2 1/2	2 1/2
2000	East Black Craig, t, t, Scotland	25 00	—	—	—	—
4000	East Chiverton, t, Perranabuloe	6 10 00	—	1 1/2	1 1/2	1 1/2
6000	East Grenville, c, Camborne	7 8 60	—	—	—	—
9000	E. Nant-y-mwyn, t, c, Brecknockshire,	1 00	—	3 1/2	3 1/2	3 1/2
30000	East Tywarhale, c, St. Agnes	0 10 00	—	3 1/2	3 1/2	3 1/2
15000	East Van, t, Llanidloes*	5 00	—	12 1/2	11 1/2	12 1/2
20000	Elgar, s, t, Cardiganshire	1 00	—	1 1/2	1 1/2	1 1/2
12800	Floreance and Tonkin United* t.	0 10 00	—	—	—	—
6000	Frank Mills, t, Christow	5 00	—	3 1/2	3 1/2	3 1/2
8000	Fronvellan, t, Mont. (4000 sh. fy. pd.)	1 00	—	—	—	—
15000	Furze Hill, t, Tavis*	1 00	—	—	—	—
3950	Gawton, c, Tavistock	4 16 00	—	3 1/2	3 1/2	3 1/2
12500	Gilfach, s, t, Llangadock	2 00	—	—	—	—
12000	Glan Clwyd, t, c, Gwyddelwern	1 00	—	3 1/2	3 1/2	3 1/2
10000	Glan Severn, s, t, Flintshire	1 00	—	—	—	—
10000	Glyn, t, Llanidloes	2 00	—	2 1/2	2 1/2	2 1/2
15000	Gobbert, t, Dartmoor	1 00	—	—	—	—
12000	Goginan, and Level Newydd, Card., t	2 10 00	—	—	—	—
100000	Gold, c, Merionethshire	1 00	—	—	—	—
7500	Gorsedd and Merilyn Cons., t, Flint	2 10 00	—	3	2 1/2	3
15 000	Great Dyffyl, t, c, Montgomeryshire...	4 00	—	—	—	—
9500	Great Pant-y-Pwdd, t, Holywell	2 00	—	—	—	—
10000	Grosvenor, t, Holywell (£1 sh.)	0 7 00	—	—	—	—
10000	Harehope Gill, t, Durham (£1 sh.)	0 3 60	—	—	—	—
64	Harwood, t, Durham	0 15 00	—	1 1/2	3 1/2	1 1/2
8000	Haworth United, c, Llanidloes	8 50	—	—	—	—
4000	Killifreth, t, Chacewater	1 00	—	7 1/2	3 1/2	7 1/2
25000	Kingston Consols, s, t, Cornwall	1 00	—	—	—	—
12000	Ladywell, t, t, Salop	2 10 00	—	2	1 1/2	2 1/2
2500	Levant, c, t, St. Just	9 6 60	—	—	—	—
64	Llanidlo, s, t, Flintshire	50 00	—	—	—	—
14000	Llanidloes, t, Montgomery*	3 00	—	3 1/2	3 1/2	3 1/2
15000	Llanlivery Cons., t, c, ars, Llanlivery,	1 00	—	1 1/2	1 1/2	1 1/2
15000	Llanrhaeadr, t, Montgomery*(£2 sh.)	1 10 00	—	—	—	—
30000	Llanrhondda, t, Carnarvonshire	2 00	—	3 1/2	2 1/2	3 1/2
15000	Llynwethal, t, Cardigan	1 00	—	1 1/2	1 1/2	1 1/2
6 000	Medlyn Moor, t, Wensley	4 10	—	—	—	—
8000	Mellnace, c, Hayle*	4 00	—	—	—	—
13000	Monydd Gorrdu, t, Cardigan*	5 00	—	4	3 1/2	4
4000	Nanty, t, Montgomeryshire*	1 00	—	—	—	—
25000	Nant-y-Ronen, s, t, Cardigan*	1 00	—	—	—	—
10000	New Beldion, t, Northumberland*	1 00	—	—	—	—
12000	New Caroline, c, Perranabuloe	1 00	—	—	—	—
3000	New Chiverton, t, c, Perranabuloe	6 00	—	6 1/2	6 1/2	6 1/2
20000	New Consols, c, Tavistock*	3 00	—	1 1/2	1 1/2	1 1/2
8000	New Crickheath, t, t, Shropshire	2 00	—	—	—	—
4000	New Dolcoath, t, c, St. Agnes	3 00	—	—	—	—
20000	New East Foe, t, c, St. Blazey*	0 10 00	—	2	1 1/2	2
2 00	New Hendra, t, Breage	2 00	—	1 1/2	1 1/2	1 1/2
10000	New North Pool, c, t, Illogan	3 00	—	3	2 1/2	3
4000	New Pembroke, t, c, Par Station	5 4 60	—	3 1/2	3 1/2	3 1/2
10000	New Rosewarne, c, Gwinear	6 12 00	—	3 1/2	3 1/2	3 1/2
3200	New South Merilyn, t, Flint*	2 10 00	—	—	—	—
4 00	North Cornwall, t, Cornwall (£3 sh.)	3 00	—	3 1/2	3 3 1/2	3 1/2
17000	North Frin, t, c, Isle of Man	2 00	—	1 1/2	1 1/2	1 1/2
2000	North Frin, t, c, St. Blazey*	1 00	—	1 1/2	1 1/2	1 1/2
2000	North Wheal Toward, c, t, Illogan	1 00	—	—	—	—
1000	North Rosewarne, c, Gwinear	6 12 60	—	—	—	—
8000	North Treleigh Wood, t, Redruth*	1 00	—	1 1/2	1 1/2	1 1/2
5938	North Trekerby, c, St. Agnes	2 15 40	—	—	—	—
4000	Old Talargoch, t, Flintshire*	2 00	—	—	—	—
25000	Old Tincroft, c, t, Lelant*	4 00	—	4 1/2	4 1/2	4 1/2
15923	Parya Mountain, c, Anglesia	3 00	—	1	3 1/2	1
4000	Patey Bridge, t, c, Yorkshire	5 00	—	5 1/2	5 1/2	5 1/2
6000	Pennant, t, bar, North Wales*	5 00	—	6	5 1/2	6
13000	Pennery, t, Shropshire*	2 00	—	2 1/2	2 1/2	2 1/2
10000	Plynnimilly, t, Llanidloes*	2 50	—	3 1/2	3 1/2	3 1/2
10000	Port Nigel, t, Breage	21 00	—	—	—	—
2000	Prideaux Wood, t, Carnarvonshire	2 00	—	1 1/2	1 1/2	1 1/2
12800	Prince of Wales, c, Calstock	3 7 60	—	3 1/2	3 1/2	3 1/2
6000	Relisian Consols, c, Gwinear	0 10 00	—	—	—	—
15000	Rookhope, t, Durham*	1 10 00	—	1 1/2	1 1/2	1 1/2
5889	Rosewall Hill and Ransom, t.	47 8 60	—	3 1/2	3 1/2	3 1/2
6000	Rosewarne United, c, t, Gwinear...	1 10 00	—	—	—	—
3000	Russell, s, t, Swymbridge	0 6 00	—	—	—	—
5000	Silvercross, c, t, Marazion	1 00	—	1 1/2	1 1/2	1 1/2
12000	Snowbrook, s, t, Montgomery	5 00	—	5	4 1/2	5
12000	South Bwadrain, s, t, Llanbadarnfawr	0 13 00	—	—	—	—
6000	South Cwmystwith, t, Cardiganshire	0 10 00	—	2 1/2	2 1/2	2 1/2
5000	South Dalcroft, t, Cardigan*	1 10 00	—	—	—	—
512	South Dolcoath, t, c, Keelson	12 6 00	—	1 1/2	1 1/2	1 1/2
5000	South Great Work, t, St. Hilary	2 12 60	—	—	—	—
12000	South Lishurine, t, t, Cardigan*	0 12 60	—	—	—	—
18000	So. Rom. Gravel, t, £5000 deb. 15p.c.	1 10 00	—	1 1/2	1 1/2	1 1/2
6000	South Roskear, t, c, Camborne	6 10 00	—	6	4 5	6
6000	South Tolcarne, t, c, Camborne	1 9 00	—	3 1/2	3 1/2	3 1/2
12000	South Van, t, c, Montgomeryshire	1 00	—	—	—	—
3000	South Ward, t, Beerferri	5 8 00	—	1 1/2	3 1/2	1 1/2
4500	South Wh. F. Frothy, c, Illogan	3 4 10	—	—	15 16	—
450	South Wh. F. Frothy, c, Illogan	6 2 4	—	1 1/2	1 1/2	1 1/2
452	Spearn Moor, t, Penzance	49 17 9	—	—	—	—
4000	St. Agnes Consols, t*	5 00	—	5 1/2	5 1/2	5 1/2
14000	St. Blazey, t, c*(£2 10s. shares)	2 00	—	—	—	—
10000	St. David's, s, t, Holywell	1 00	—	—	—	—
6000	St. Lawrence, Amal, t, Flintshire*	2 00	—	—	—	—
10 000	St. Patrick, t, Halkin, Holywell*	1 00	—	1 1/2	1 1/2	1 1/2
8000	Success, c, t, L. (12,000, called).	1 00	—	—	—	—
15 000	Sunnyside, s, t, Durham	2 00	—	3 1/2	3 3 1/2	3 1/2
30000	Talyhoth, s, t, Talyhoth	1 00	—	1	3 1/2	1
4000	Teasdale, t, Durham	0 18 00	—	—	—	—
14000	Treign Valley, t, bar, Bridford	1 00	—	—	—	—
10000	Treigh Valley, t, Cardigan*	1 00	—	1 1/2	1 1/2	1 1/2
12000	Treigh Consols, t, c, Ice	0 3 00	—	3 1/2	3 1/2	3 1/2
5000	Treigh Wood, t, Redruth	6 10 00	—	5	4 5	5
547	Treigh Consols	15 00	—	3 1/2	3 1/2	3 1/2
12000	Trethellan, s, t, Crantock*	2 00	—	—	—	—
7500	Tresellyn, t, Altarnun	2 10 00	—	—	—	—
5174	Utile Wood, t, c, Kenwyn	3 15 60	—	1 1/2	1 1/2	1 1/2
20000	Van Consols, t, Llanidloes*	2 10 00	—	2 1/2	2 1/2	2 1/2
1000	Vaughan, s, t, Cardigan	10 00	—	—	—	—
12000	West Asheton, t, Carnarvon	1 00	—	2 1/2	1 1/2	2 1/2
6000	West Basset, c, Illogan†	5 6 8	—	5	5 1/2	5
20000	West Bryn Celyn, t, Flintshire	1 00	—	—	—	—
3000	West Crayke Moor, t, Pateley Bridge*	10 00	—	12	11 1/2	12
12000	West Esgrail Lie, t, Breage	2 00	—	3 1/2	3 1/2	3 1/2
5000	West Golddolfin, t, c, Breage	1 00	—	2 1/2	1 1/2	2 1/2
12 000	West Goginan, t, Cardiganshire	1 10 00	—	3 1/2	3 1/2	3 1/2
15000	West Great Work, t, Breage*	1 00	—	3 1/2	3 1/2	3 1/2
10000	West Llangynog, s, t, Montgomery	2 00	—	—	—	—
12000	West Maria & Portcenn, t, c, Lamer.	4 12 60	—	3 1/2	3 1/2	3 1/2
5000	West Mary Ann, t, Menheniot	0 3 60	—	3 1/2	3 1/2	3 1/2
50000	West Milwr, s, t, Flint	1 00	—	—	—	—
10000	West Pant-y-Gw, s, t, Flint	1 00	—	—	—	—
4000	West Pateley Bridge, t, c, Yorkshire	1 00	—	—	—	—
30 000	West Phoenix, t, Linkinhorne	5 00	—	5 1/2	5 1/2	5 1/2
1403	West Polbren, t, St. Agnes	0 18 00	—	—	—	—
10000	West Roskear, t, s, t, c, Camborne...	0 12 00	—	3	2 1/2	3
12000	West Tankerville, t, Salop*	3 00	—	2 1/2	2 1/2	2 1/2
6000	West Wheal Gorland, t, c	4 00	—	—	—	—
3000	West Wheal Pevor, t, Redruth	0 10 00	—	—	—	—
4000	West Wheal Reeton, c, Camborne†	40 00	—	40	34 38	40
12000	West Wheal Sailey, t, Montgomery	3 00	—	4 1/2	4 1/2	4 1/2
6000	Wheal Agar, c, t, Breage	0 10 00	—	2 1/2	2 1/2	2 1/2
2500	Wheal Argus, c, t, Breage	0 10 00	—	—	—	—
741	Wheal Basset and Grylls, t	9 18 60	—	—	—	—
6000	Wheal Coates, t, St. Agnes	2 00	—	—	—	—
6000	Wheal Crebor, c, Tavistock	4 10	—	2 1/2	2 1/2	2 1/2
5490	Wheal Emma, t, c, Buckfastleigh	1 10 00	—	—	—	—
5179	Wheal Grenville, c, Camborne*	11 11 60	—	1 1/2	3 1/2	1 1/2
5000	Wheal Henty, t, c, Breage	1 14 00	—	—	—	—
3000	Wheal Henty, t, c, Breage	6 10 00	—	2 1/2	1 1/2	2 1/2
1 000	Wheal Rhy, t, Llangar	0 10 00	—	—	—	—
4096	Wheal Rhy, t, c, Redruth	13 00	—	1 1/2	1 1/2	1 1/2
6000	Wheal Vincent, t, Altarnun	1 11 00	—	—	—	—
2000	Willoughby, t, Llanrwst	2 10 00	—	—	—	—